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UK METEOROLOGICAL OFFICE GLOBAL DATA MONITORING REPORT

AUGUST, 94

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12 UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 ms^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-11 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-12. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1.|bias| $\geq$ 4 hPa (pressure),
$\geq$ 5 $m\ s^{-1}$ (wind speed),
$\geq$ 30 degrees (direction).

2.SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3.PGE $\geq$ 25

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
ATSR	ALL	MSLP	SUR	29	0	0	1.1	5.0	5.1
CG2241	ALL	MSLP	SUR	34	33	97	0.0	-13.5	13.5
CG2960	ALL	MSLP	SUR	128	101	79	3.4	0.7	3.5
CG2992	ALL	MSLP	SUR	77	8	10	6.4	2.2	6.8
CZ9742	ALL	MSLP	SUR	44	44	100	0.0	0.0	0.0
C6BT8	ALL	MSLP	SUR	25	0	0	1.2	5.2	5.3
C6JG8	ALL	MSLP	SUR	25	0	0	1.9	4.9	5.3
C6KB6	ALL	MSLP	SUR	38	0	0	1.1	-5.6	5.7
DVRF	ALL	MSLP	SUR	185	0	0	0.9	5.2	5.2
D5NE	ALL	MSLP	SUR	22	0	0	0.8	6.6	6.7
ELND2	ALL	MSLP	SUR	28	0	0	2.2	5.0	5.5
ESDI	ALL	MSLP	SUR	29	0	0	1.8	-6.1	6.3
EUAF	ALL	MSLP	SUR	23	0	0	1.7	5.2	5.5
NQST	ALL	MSLP	SUR	35	0	0	1.4	-4.0	4.2
UHUN	ALL	MSLP	SUR	32	0	0	1.5	4.0	4.3
UJWO	ALL	MSLP	SUR	23	0	0	1.8	-4.1	4.5
UNFG	ALL	MSLP	SUR	20	0	0	2.4	4.6	5.2
UNWJ	ALL	MSLP	SUR	28	0	0	1.3	4.3	4.5
UVZP	ALL	MSLP	SUR	25	0	0	1.4	-6.7	6.8
VC6749	ALL	MSLP	SUR	20	0	0	2.4	-5.4	5.9
VLHJ	ALL	MSLP	SUR	32	20	63	2.8	-1.5	3.2
VPHW	ALL	MSLP	SUR	29	0	0	1.4	-5.8	5.9
VROP	ALL	MSLP	SUR	24	0	0	2.1	-4.6	5.0
VRUA4	ALL	MSLP	SUR	33	0	0	2.2	4.3	4.8
WCB5820	ALL	MSLP	SUR	42	1	2	1.4	6.1	6.3
WXY6216	ALL	MSLP	SUR	23	0	0	2.2	-4.8	5.2
WZE4928	ALL	MSLP	SUR	36	36	100	0.0	0.0	0.0
ZBWP	ALL	MSLP	SUR	30	1	3	0.7	4.1	4.2
3EAY5	ALL	MSLP	SUR	26	0	0	1.7	-6.4	6.6
63102	ALL	MSLP	SUR	105	0	0	2.3	6.5	6.9
WIND SPEED									
CBVM	ALL	SPEED	SUR	34	0	0	3.4	6.0	6.9
C6DY8	ALL	SPEED	SUR	26	0	0	2.9	11.7	12.1
DEHZ	ALL	SPEED	SUR	21	0	0	3.7	5.3	6.5
DLCX	ALL	SPEED	SUR	21	0	0	4.2	5.4	6.8
ELLE9	ALL	SPEED	SUR	30	2	7	4.6	9.3	10.4
FNIH	ALL	SPEED	SUR	117	2	2	5.5	11.5	12.8
FNKA	ALL	SPEED	SUR	24	0	0	5.9	6.2	8.5
HPEW	ALL	SPEED	SUR	61	1	2	5.2	9.2	10.6
HP7810	ALL	SPEED	SUR	25	0	0	3.1	5.4	6.2
HSBN	ALL	SPEED	SUR	37	0	0	9.0	9.2	12.8
LAWO2	ALL	SPEED	SUR	26	0	0	2.6	5.6	6.1
OXRA6	ALL	SPEED	SUR	32	0	0	2.8	5.1	5.8
WRYW	ALL	SPEED	SUR	23	0	0	2.9	5.1	5.8
46054	ALL	SPEED	SUR	105	0	0	2.4	6.0	6.4
WIND DIRECTION									
C6IO9	ALL	DIRN.	SUR	20	0	0	46.7	31.2	56.2
21004	ALL	DIRN.	SUR	53	0	0	14.2	36.4	39.1
3ESD3	ALL	DIRN.	SUR	36	0	0	36.7	34.6	50.5
45136	ALL	DIRN.	SUR	29	0	0	104.9	-27.3	108.4
46045	ALL	DIRN.	SUR	21	0	0	99.6	-26.4	103.0
46053	ALL	DIRN.	SUR	62	0	0	42.4	-71.9	83.5
46131	ALL	DIRN.	SUR	35	0	0	53.6	-38.0	65.7
46146	ALL	DIRN.	SUR	38	0	0	74.8	-44.4	87.0
51006	ALL	DIRN.	SUR	32	0	0	143.9	-13.6	144.5
51019	ALL	DIRN.	SUR	44	0	0	106.2	-56.3	120.2
51301	ALL	DIRN.	SUR	36	0	0	48.7	31.5	58.0
51306	ALL	DIRN.	SUR	38	0	0	52.3	-35.5	63.2
51309	ALL	DIRN.	SUR	23	0	0	99.8	45.5	109.7

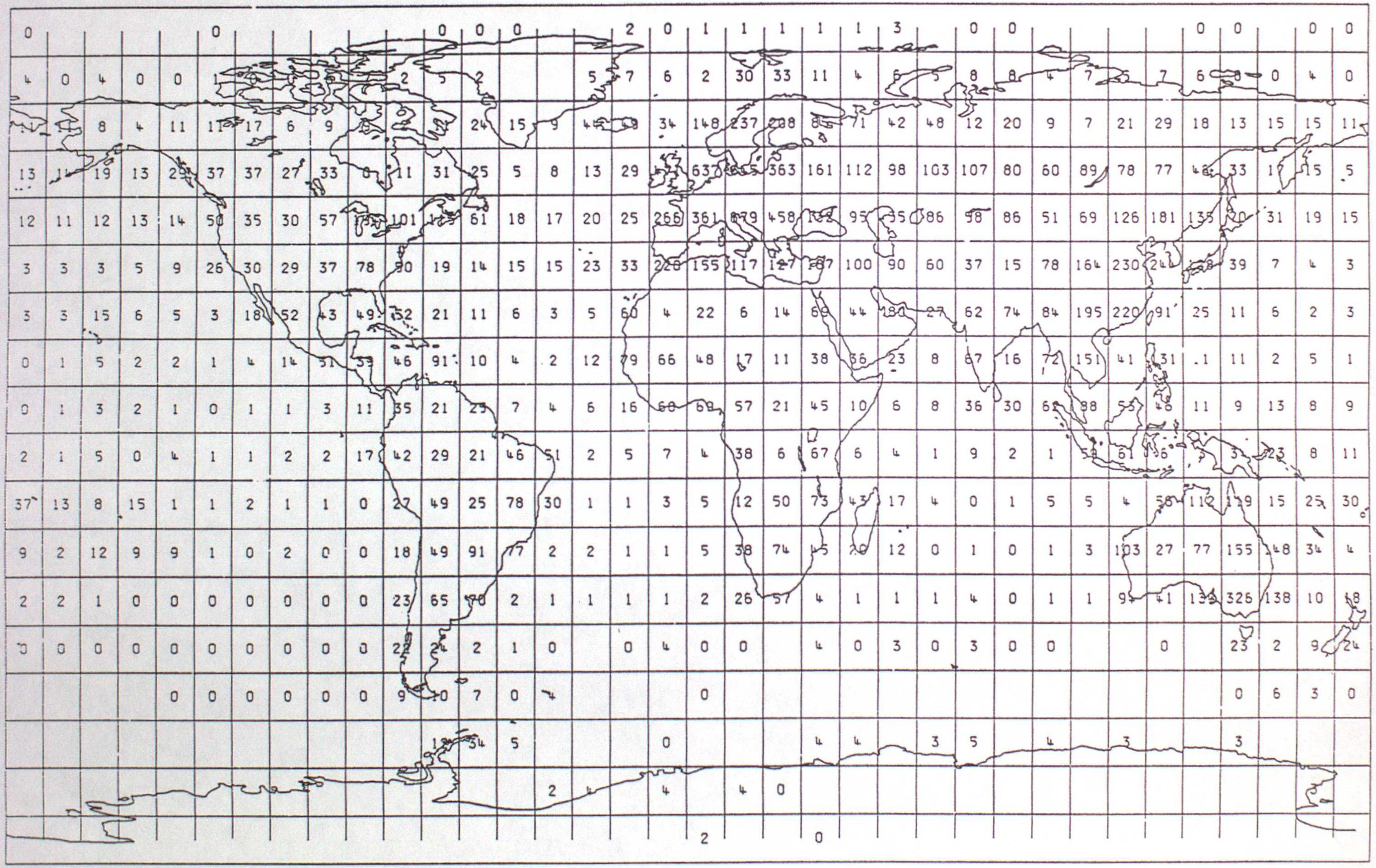
AVAILABILITY - SHIP/SYNOP - AUGUST 1994

FIGURE 1

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 18249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2 1 5 0 4 1 1 2 2 17 42 29 21 46 51 2 5 7 4 38 6 67 6 4 1 9 2 1 58 61 36 7 3 23 8 11
37 13 8 15 1 1 2 1 1 0 27 49 25 78 30 1 1 3 5 12 50 73 43 17 4 0 1 5 5 4 58 112 139 15 25 30
9 2 12 9 9 1 0 2 0 0 18 49 91 77 2 2 1 1 5 38 74 45 20 12 0 1 0 1 3 103 27 77 155 148 34 4
2 2 1 0 0 0 0 0 0 0 23 65 78 2 1 1 1 1 2 26 57 4 1 1 1 4 0 1 1 94 41 139 326 138 10 18
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0 0 0 0 0 0 0 9 10 7 0 4 0 0 6 3 0
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2 4 4 4 0 3
2 0

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1.$|$bias$|$ $\geq$ 4 hPa (pressure),
$\geq$ 5 m s^{-1} (wind speed),
$\geq$ 30 degrees (direction).

2.SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3.PGE $\geq$ 25.

```
IDENTIFIER  LAT.  LONG.  HOUR  ELEM  LEVEL NOBS  NGE  PGE    SD   BIAS    RMS

MEAN SEA LEVEL PRESSURE

21525       28.5  146.9  ALL   MSLP   SUR     76    0    0   3.8    6.8    7.8
21534       42.9  143.3  ALL   MSLP   SUR    162    0    0   2.4   -9.4    9.8
47559       74.7  -95.0  ALL   MSLP   SUR    351    0    0   1.8   -4.1    4.4
65593       59.8  -39.6  ALL   MSLP   SUR     62   60   97   0.0   -0.1    0.1

WIND DIRECTION

64544       63.2  -29.6  ALL   DIRN.  SUR    290    0    0 100.4  ***** 149.0
```

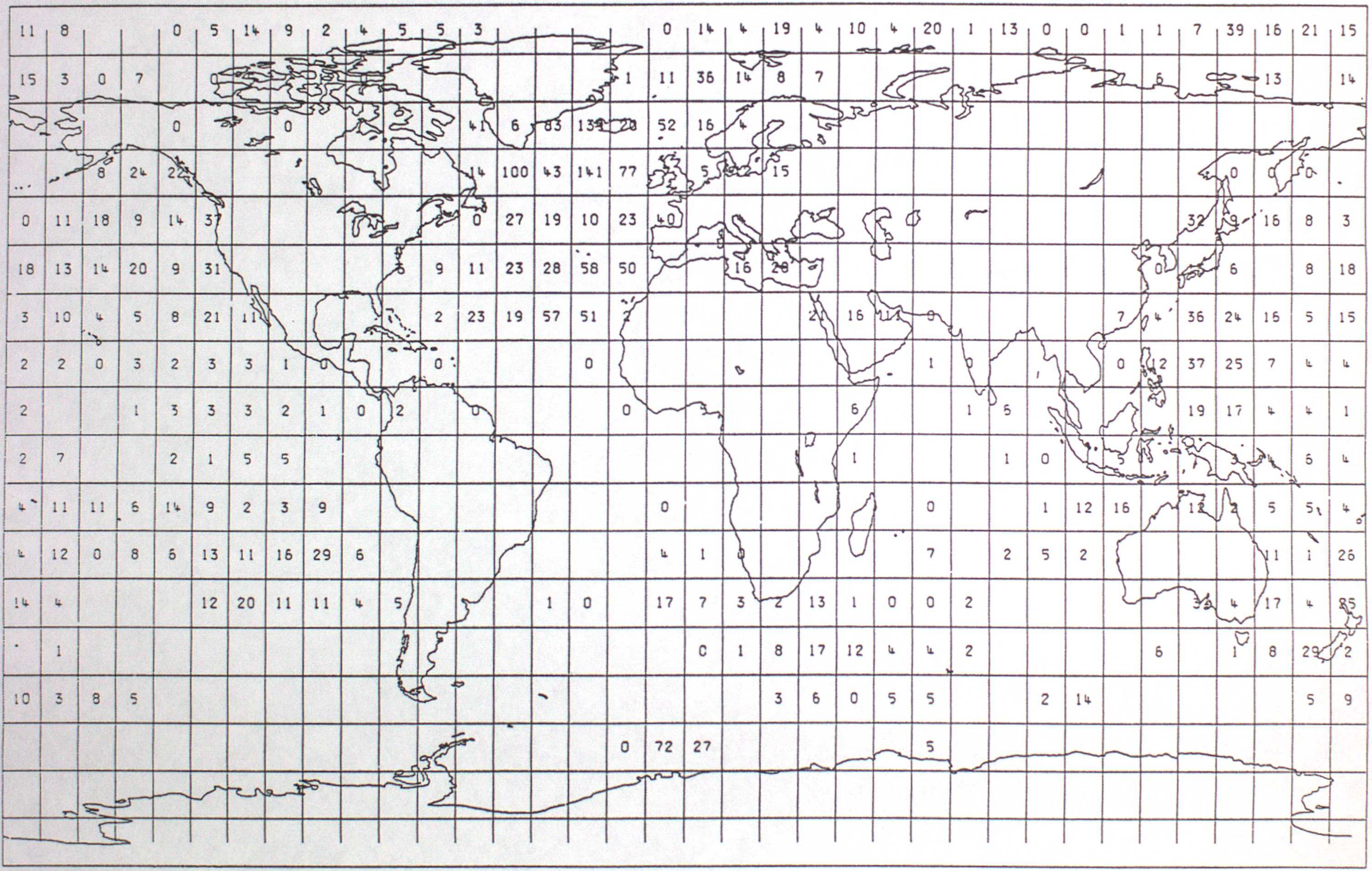
AVAILABILITY - DRIBU - AUGUST 1994

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 3248

FIGURE 2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0 11 18 9 14 37 0 27 19 10 23 40 32 9 16 8 3
18 13 14 20 9 31 6 9 11 23 28 58 50 16 28 0 6 8 18
3 10 4 5 8 21 11 2 23 19 57 51 2 21 16 11 0 7 4 36 24 16 5 15
2 2 0 3 2 3 3 1 0 0 0 1 0 0 12 37 25 7 4 4
2 1 3 3 3 2 1 0 2 0 0 6 1 5 19 17 4 4 1
2 7 2 1 5 5 1 1 0 5 3 6 4
4 11 11 6 14 9 2 3 9 0 0 1 12 16 12 2 5 5 4
4 12 0 8 6 13 11 16 29 6 4 1 0 7 2 5 2 11 1 26
14 4 12 20 11 11 4 5 1 0 17 7 3 2 13 1 0 0 2 35 4 17 4 25
1 C 1 8 17 12 4 4 2 6 1 8 29 2
10 3 8 5 3 6 0 5 5 2 14 5 9
0 72 27 5

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for synops & autosynops.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).

Parameters monitored :HT(m) :Station height (in metres) as given in WMO No. 9 Vol A

:RP :Pressure reporting practice
M=mean sea level pressure (hPa) reported.
S=Station level pressure reported.
8=Geopotential height (m) of 850 hPa surface reported.
7=Geopotential height (m) of 700 hPa surface reported.

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:%REJ :Percentage of observations flaggled.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)

SELECTION CRITERIA :NOBS ≥ 20 ,and one or more of the following:

1. |bias| ≥ 4 hPa
2. SD ≥ 6 hPa
3. PGE ≥ 25.

Note:- **For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.**
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60010	28.3N	16.5W	2368	S7	65	0	0	45	1.3	-4.5	4.7
60445	36.2N	5.4E	1081	S8	110	0	0	93	1.0	4.3	4.4
60468	35.6N	6.2E	1052	S8	111	111	100	18	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	112	104	93	100	0.5	14.3	14.3
60670	24.6N	9.5E	1054	S8	108	0	0	100	0.9	8.5	8.5
62730	15.5N	36.4E	500	MS	52	0	0	10	1.5	4.4	4.6
62762	13.6N	33.6E	418	MS	59	0	0	22	1.7	4.5	4.8
63333	11.1N	39.7E	1916	MS	49	2	4	92	1.1	7.2	7.3
63402	7.7N	36.8E	1577	MS	79	67	85	97	3.1	-12.7	13.1
63453	8.8N	39.8E	1062	S	55	5	9	98	1.2	12.2	12.3
63474	7.1N	40.0E	2450	S	47	47	100	0	0.0	0.0	0.0
63478	5.1N	44.6E	320	S	45	0	0	51	1.8	6.8	7.0
63801	4.9S	29.6E	885	S8	35	0	0	83	1.1	7.6	7.7
64503	3.4S	10.7E	34	M	62	1	2	98	1.4	-9.5	9.6
64507	2.9S	11.0E	79	M	62	0	0	97	2.0	-6.3	6.6
64911	5.0N	9.9E	821	8	98	1	1	63	2.0	-5.7	6.0
68014	19.6S	18.1E	1411	S8	83	0	0	76	1.1	-6.0	6.1
68752	32.8S	27.4E	524	S8	37	0	0	100	1.1	-8.2	8.3

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
29999	52.5N	99.8E	1570	S8	86	85	99	88	0.0	-11.8	11.8
30554	54.5N	113.6E	995	MS	57	0	0	100	1.1	10.9	11.0
38609	40.1N	70.6E	832	MS	50	1	2	74	1.1	-4.2	4.3
38696	39.6N	66.9E	675	MS	54	1	2	70	1.2	-4.8	4.9
38954	37.5N	71.5E	2080	8	71	3	4	46	2.6	-4.8	5.5
40356	31.7N	38.7E	818	S8	115	0	0	67	0.6	-5.2	5.2
40376	27.6N	38.6E	860	MS	70	70	100	0	0.0	0.0	0.0
40432	25.8N	42.0E	783	MS	70	70	100	0	0.0	0.0	0.0
40701	39.3N	44.4E	1470	MS	98	1	1	82	1.2	5.5	5.6
40723	37.5N	57.3E	1074	MS	88	0	0	16	1.3	-5.0	5.2
40726	36.8N	45.7E	1385	MS	87	4	5	80	1.1	4.9	5.0
40731	36.3N	50.0E	1278	MS	75	4	5	55	1.6	-4.4	4.7
40740	36.8N	54.3E	1287	MS	49	0	0	35	1.5	-4.4	4.6
40743	36.2N	57.7E	941	MS	101	3	3	30	1.5	-5.9	6.1
40754	35.7N	51.4E	1191	MS	103	1	1	43	1.5	-4.1	4.4
40762	35.3N	59.2E	1333	MS	102	37	36	100	1.1	-13.7	13.7
40763	35.2N	58.5E	1060	MS	45	1	2	40	2.8	-6.6	7.2
40783	32.4N	49.7E	1972	MS	30	0	0	100	1.1	-7.0	7.1
40789	33.8N	55.1E	921	MS	69	5	7	72	1.6	5.8	6.0
40818	31.2N	52.7E	2004	MS	96	0	0	23	1.2	-5.0	5.1
40836	30.8N	51.7E	1880	MS	90	1	1	64	1.5	5.8	6.0
40859	29.0N	53.7E	1383	MS	91	0	0	100	1.1	7.7	7.8
41254	23.1N	57.7E	1755	S8	68	68	100	100	0.0	0.0	0.0
44241	48.9N	106.1E	807	S	57	3	5	25	3.7	4.7	6.0
44277	46.4N	96.3E	2147	MS	92	2	2	0	1.7	-4.1	4.4
44292	47.9N	107.0E	1338	MS	81	0	0	0	1.2	5.2	5.3
44298	46.4N	108.2E	1285	MS	80	1	1	5	1.1	4.2	4.3
44416	28.6N	81.6E	720	MS	71	1	1	0	1.2	6.4	6.5
44477	27.0N	87.4E	1445	S8	65	65	100	98	0.0	0.0	0.0
51467	42.7N	86.3E	1753	S	115	0	0	0	1.7	6.7	6.9
52602	38.8N	93.4E	2734	S	117	0	0	0	1.6	-5.3	5.5
52866	36.7N	101.8E	2296	S	117	1	1	48	1.2	6.4	6.5
56444	28.5N	98.9E	3488	S	117	117	100	100	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	113	0	0	0	2.0	6.9	7.2
57622	28.9N	107.2E	1907	S	113	0	0	0	1.0	-9.5	9.6
57816	26.5N	106.7E	1222	MS	109	108	99	99	0.0	12.2	12.2

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80315	3.0N	75.3W	443	MS	45	0	0	13	2.5	-4.7	5.3
83235	12.3S	46.4W	660	MS	37	0	0	97	0.7	6.7	6.7
83295	13.4S	39.9W	755	MS	28	0	0	89	0.9	-4.1	4.2
83332	14.1S	46.4W	950	MS	75	31	41	97	0.7	14.1	14.1
83423	16.7S	49.3W	729	MS	76	0	0	39	0.8	-5.0	5.1
83488	17.8S	42.9W	1097	MS	44	44	100	98	0.0	0.0	0.0
83512	18.5S	54.8W	286	MS	56	0	0	41	2.4	-5.1	5.6
83531	18.6S	46.5W	896	MS	45	3	7	87	0.9	-7.6	7.7
83586	19.5S	44.3W	732	S	49	3	6	16	1.0	-4.2	4.3
83587	19.8S	43.9W	850	MS	60	4	7	0	1.0	-8.5	8.6
83689	21.3S	43.8W	1171	MS	27	1	4	70	1.0	4.0	4.1
83704	22.3S	53.9W	369	MS	68	13	19	99	1.6	-10.1	10.2
83953	30.9S	55.5W	231	M	37	0	0	73	3.7	5.3	6.5
84203	2.1S	79.9W	9	M	64	0	0	0	1.6	4.3	4.6
84248	3.3S	80.0W	10	M	20	0	0	0	1.4	5.0	5.2
84401	5.2S	80.6W	50	MS	94	0	0	0	1.6	5.1	5.3
84425	5.9S	76.1W	184	MS	45	0	0	0	2.7	5.4	6.0
84452	6.8S	79.8W	30	MS	114	0	0	0	1.5	4.0	4.3
84455	6.5S	76.4W	282	MS	56	0	0	4	1.9	5.9	6.2
84472	7.1S	78.5W	2622	S	46	0	0	74	2.2	-6.9	7.2
84501	8.1S	79.0W	30	MS	76	0	0	0	1.7	4.9	5.2
84531	9.2S	78.5W	21	MS	38	0	0	0	1.2	6.6	6.7
84628	12.0S	77.1W	13	MS	106	0	0	0	1.3	4.6	4.8
84658	12.6S	69.2W	266	MS	71	0	0	0	2.4	6.6	7.0
84686	13.6S	72.0W	3249	S	106	0	0	33	2.2	-7.6	7.9
84782	18.1S	70.3W	469	MS	82	0	0	0	1.9	5.4	5.7
85223	17.4S	66.1W	2548	S7	94	0	0	27	2.1	-4.6	5.1
85406	18.3S	70.3W	58	M	114	0	0	0	1.7	5.5	5.8
87046	24.4S	65.1W	905	S8	95	95	100	0	0.0	0.0	0.0
87322	31.3S	66.6W	658	MS	74	73	99	0	0.0	-6.7	6.7

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
76118	30.4N	109.7W	1040	MS	36	1	3	97	0.9	-9.6	9.6
76373	25.3N	105.8W	1967	MS	67	60	90	96	0.8	14.0	14.0
76539	22.1N	101.0W	1871	MS	94	1	1	88	1.0	-5.2	5.3
76632	20.1N	98.7W	2417	MS	59	0	0	98	0.8	-7.3	7.3
76692	19.1N	96.1W	13	MS	80	0	0	9	1.0	4.8	4.9
76726	18.9N	99.3W	1560	MS	73	1	1	97	1.1	-8.2	8.3
76762	17.5N	99.5W	1360	MS	74	2	3	97	1.2	11.4	11.5
76848	16.3N	92.1W	1530	MS	97	7	7	99	0.8	-13.6	13.6

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
94001	6.1S	141.3E	-9999	M	79	0	0	0	1.0	4.4	4.5
94258	17.2S	137.9E	61	MS	72	0	0	100	0.9	-6.7	6.8

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	85	1	1	95	1.1	-5.2	5.3
04207	81.7N	59.0W	105	MS	61	1	2	66	3.2	6.9	7.6
08221	40.5N	3.6W	633	MS	104	1	1	85	1.1	5.3	5.4
11241	47.2N	15.5E	1438	S8	84	28	33	39	3.1	-2.0	3.7
11346	47.3N	12.8E	917	S	68	0	0	57	1.5	-4.5	4.7

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
15052	47.4N	25.6E	1541	S8	109	1	1	0	1.9	-4.5	4.9
16020	46.5N	11.3E	1461	MS	84	84	100	0	0.0	0.0	0.0
16614	40.4N	21.3E	604	MS	114	0	0	99	1.4	-7.7	7.8
17084	40.6N	35.0E	837	MS	105	0	0	99	1.4	6.8	6.9
17260	37.1N	37.4E	855	MS	103	94	91	100	0.3	14.6	14.6
40016	36.5N	40.8E	296	M	78	0	0	42	2.4	-4.0	4.7
40184	31.8N	35.2E	809	S8	118	0	0	100	0.9	5.8	5.9

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89324	80.0S	120.0W	1530	S8	97	16	16	32	4.0	-5.9	7.1
89642	66.7S	140.0E	43	MS	90	6	7	23	4.6	4.6	6.5
89667	78.0S	166.5E	20	MS	98	0	0	27	4.3	5.5	7.0
89757	73.8S	55.7E	2775	S7	77	77	100	100	0.0	0.0	0.0
89762	68.7S	60.6E	1850	M	22	22	100	23	0.0	0.0	0.0
89803	68.5S	102.2E	2118	S7	83	4	5	41	2.6	-8.8	9.2
89805	74.1S	109.8E	3070	S7	81	25	31	11	5.0	0.8	5.1
89811	66.7S	112.9E	1362	S8	83	26	31	90	2.6	-11.8	12.1
89828	74.5S	123.0E	3280	S7	98	18	18	54	4.0	8.8	9.7
89860	74.2S	160.3E	1772	S8	92	1	1	13	4.4	-7.5	8.7
89861	74.5S	160.5E	1525	S8	72	1	1	11	3.9	-8.9	9.7

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in $m\ s^{-1}$

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 $m\ s^{-1}$ Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

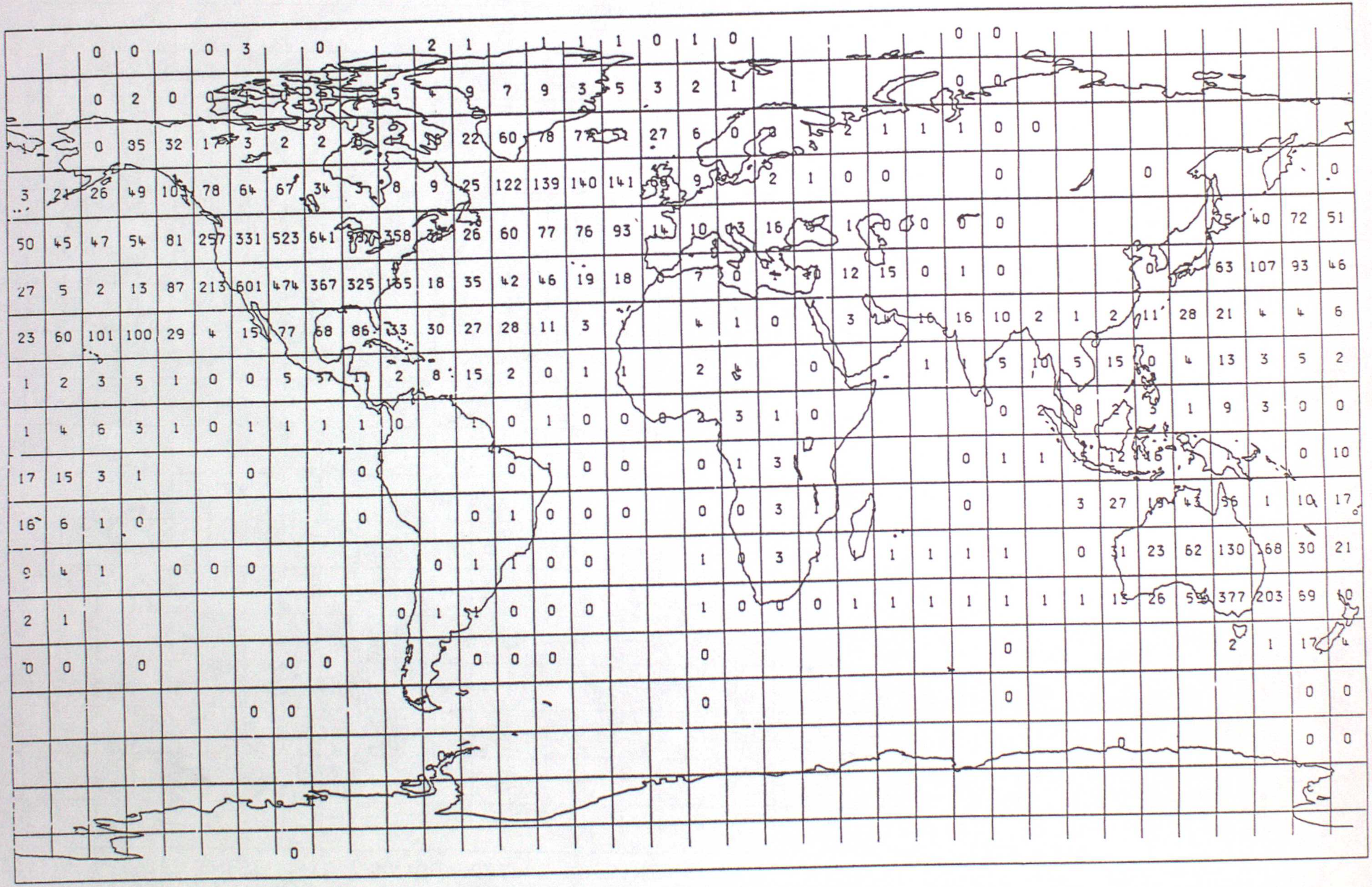
	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	99	2	9	3.9	-2.2	97	0	8	1	10.9	1.9
AAL	4112	0	1	1.8	-0.2	4111	0	2	0	7.4	1.8
AAN	175	1	3	1.5	-0.3	164	0	3	0	8.3	1.5
AAR	1601	1	1	1.6	-0.3	1577	0	2	0	7.6	1.5
ACA	1205	0	2	2.3	0.0	1218	0	2	1	7.1	0.7
ACI	40	5	5	1.1	0.5	40	0	0	0	6.8	0.0
ADV	52	0	2	2.2	-0.8	52	0	2	2	10.8	4.4
AEA	284	1	2	1.7	0.0	270	0	3	0	9.0	1.2
AEL	376	1	3	1.8	0.0	380	0	3	0	7.3	1.1
AFL	131	5	100	3.9	2.4	125	0	100	2	10.7	1.5
AFR	1163	1	3	2.0	-0.1	1172	0	5	1	7.5	1.4
AIC	23	0	0	2.2	-0.9	23	0	4	0	10.0	2.4
AJJ	43	0	5	2.2	-0.9	43	0	14	2	18.5	-0.2
AME	27	4	4	1.6	-0.4	27	0	11	0	8.8	2.1
AMT	446	2	3	1.8	0.7	454	0	2	0	6.9	1.5
AMX	458	1	72	2.5	0.7	460	0	3	0	8.0	1.2
ANA	786	0	1	1.5	-0.2	784	0	2	1	7.4	1.6
ANZ	2936	1	3	1.9	-0.1	2918	0	3	1	7.9	1.8
AOM	673	1	2	1.6	0.2	678	0	3	1	7.8	2.1
ARG	29	3	3	1.4	0.3	28	0	0	0	6.9	2.0
ARP	232	0	0	1.8	0.4	229	0	4	3	6.5	0.8
ATN	223	1	7	2.6	-1.9	228	0	74	0	12.7	3.2
AUA	51	0	4	2.1	-0.6	52	0	4	0	10.5	1.6
AVA	356	1	1	1.6	-0.4	360	0	4	2	7.8	1.5
AVN	41	2	2	1.4	0.0	41	0	0	0	7.6	0.3
AVY	93	0	2	1.8	-1.0	96	0	4	1	7.0	0.7
AZA	471	0	4	2.3	0.2	470	0	3	0	8.0	1.4
BAL	341	1	11	1.8	-0.2	339	0	12	1	7.3	1.8
BAW	1401	1	4	2.0	-0.4	1404	0	4	1	7.5	1.3
BBB	54	0	19	1.3	-0.4	54	0	17	0	7.2	1.8
BWA	353	3	2	1.3	0.6	351	0	3	1	7.5	1.8
CAL	1849	0	1	1.7	-0.4	1847	0	2	1	7.4	1.5
CCA	225	2	28	2.5	-0.1	224	0	6	1	9.5	0.9
CDN	2150	0	2	2.0	0.0	2152	0	3	1	7.4	1.5
CES	234	1	0	1.5	0.2	236	0	2	0	9.1	2.0
CFG	723	0	28	2.0	-1.1	731	0	2	0	7.1	1.4
CKS	124	0	36	2.0	0.1	126	0	100	0	8.9	2.2
CKT	91	1	2	1.6	-0.1	91	0	3	0	6.7	1.5
CLI	292	0	2	2.3	0.1	291	0	2	1	6.5	0.9
CLX	117	1	3	2.6	-1.1	116	0	3	0	7.0	1.0
CMI	1135	1	3	2.0	0.7	1146	0	5	3	7.7	2.2
CMM	279	0	1	2.0	-0.4	281	0	0	0	7.3	1.9
COA	938	1	3	1.7	0.4	939	0	2	0	6.5	1.3
CPA	108	3	3	1.6	-0.2	102	0	1	0	6.9	1.9
CRL	301	1	3	1.5	-0.1	298	0	4	0	8.5	2.1
CTM	66	6	52	3.4	-2.2	66	0	9	0	8.3	3.6
CUB	300	2	9	2.3	1.1	301	0	9	0	9.1	2.3
DAE	35	0	0	2.0	0.4	32	0	0	0	7.7	-2.0
DAL	5929	1	2	1.9	0.2	5735	0	2	0	7.2	1.4
DHL	176	4	82	4.2	-2.8	173	1	100	1	10.1	1.9
DLH	2206	0	4	2.1	-0.5	2213	0	8	4	7.1	1.4
DOA	222	0	8	1.4	-0.1	218	0	10	1	6.9	1.3
EIA	153	1	6	2.1	-0.4	155	0	8	0	10.0	2.2
ELY	144	1	2	2.0	-0.1	147	0	4	0	9.8	1.1
EVA	1347	1	2	1.8	-0.8	1344	0	2	0	7.4	1.4
EWW	20	0	0	4.1	1.5	21	0	0	0	10.2	2.5
FDX	852	0	2	1.8	0.3	865	0	4	1	7.8	1.5
FIN	544	1	4	2.3	0.1	543	0	5	1	7.4	1.1
FJI	461	2	3	1.6	0.2	458	0	1	0	8.6	1.4

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
FKC	24	0	0	2.5	-0.5	24	0	0	0	9.0	0.5
FMN	20	25	25	2.1	0.3	20	0	15	0	8.3	-0.8
GAF	130	1	2	2.2	-0.5	131	0	2	2	7.1	1.7
GFA	32	0	6	2.1	1.1	35	0	6	0	7.4	0.5
GIA	255	3	2	1.6	0.4	258	0	1	0	8.1	1.6
HAL	1303	0	1	1.3	0.2	1307	0	1	1	6.9	1.3
HLF	133	1	41	1.8	-1.0	136	0	6	1	8.9	1.8
IBE	2252	1	13	1.8	-0.2	2228	0	13	1	7.7	1.5
ICE	406	0	0	1.9	-0.3	403	0	3	1	7.6	1.3
JAA	56	0	2	1.7	0.8	56	0	4	2	6.6	2.3
JAL	6302	0	1	1.6	-0.1	6287	0	2	1	7.6	1.9
KAL	3485	1	1	1.8	-0.1	3474	0	3	1	7.7	1.4
KIW	56	2	4	3.5	2.4	56	0	0	0	7.2	2.3
KLM	1919	0	2	1.9	0.0	1919	0	2	1	7.2	1.4
LDA	284	0	41	2.2	-1.3	289	0	9	0	7.6	1.4
LDI	222	0	36	1.9	-1.3	217	0	6	0	9.5	2.1
LIB	241	2	5	2.1	0.0	244	0	5	2	7.9	1.1
LOT	697	0	2	2.4	-0.5	692	0	1	0	7.8	1.5
LTU	664	1	4	1.8	0.1	620	0	5	0	8.3	1.9
LWD	325	0	2	1.4	0.4	338	0	3	1	6.3	1.4
MAH	38	0	29	5.8	4.8	38	0	5	0	8.1	2.5
MAS	369	1	2	1.9	-0.3	369	0	3	1	8.3	1.6
MDA	128	2	28	2.3	0.2	130	1	2	0	6.8	1.5
MPH	680	0	1	1.9	-0.7	677	0	2	0	7.6	1.2
MRS	26	12	8	2.6	2.4	26	0	4	0	5.9	0.9
NAL	127	0	28	1.9	0.7	125	0	2	0	9.4	0.2
NCA	587	0	1	1.9	0.1	582	0	2	0	7.8	1.7
NGA	109	2	2	1.5	0.5	108	0	73	0	13.4	-0.7
NWA	10431	1	2	2.0	0.4	10383	0	3	2	8.0	1.9
OAL	41	0	5	2.3	1.1	42	0	5	0	11.0	1.5
PAL	989	1	3	1.7	-0.5	992	0	67	3	9.6	2.1
PAO	294	4	5	1.6	0.0	287	0	2	1	8.4	1.5
QFA	1917	2	2	1.8	0.1	1903	0	2	1	7.4	1.2
RAF	116	0	0	1.9	0.2	114	0	0	0	8.5	2.5
RBA	26	0	4	2.3	1.1	26	0	0	0	8.6	1.9
RIA	75	5	16	3.1	2.2	77	0	16	0	12.4	5.4
RJA	48	0	6	1.8	0.1	49	0	12	0	11.2	3.1
RKA	36	0	0	1.5	0.5	35	0	0	0	6.2	2.1
RON	59	0	2	2.2	0.8	58	0	3	0	10.7	0.4
ROT	35	0	3	1.6	-0.4	34	0	3	0	10.0	2.9
RRR	280	2	17	2.5	-0.3	280	0	63	0	9.3	2.4
SAA	209	0	2	1.9	-0.4	203	0	3	0	7.2	2.0
SAB	52	0	4	1.9	0.2	51	0	4	0	6.1	1.2
SAS	1992	0	1	2.2	-0.6	1973	0	3	2	7.0	1.1
SIA	1353	0	2	1.9	-0.5	1351	0	2	1	7.9	1.5
SJM	51	0	2	2.0	1.2	51	0	4	0	9.2	2.2
SOL	40	3	3	0.9	-0.2	39	0	0	0	6.8	1.9
SPP	388	1	2	1.7	-0.3	369	0	1	0	7.5	2.1
SVA	154	1	7	1.9	0.2	172	0	8	0	8.4	0.4
SWR	158	0	1	2.1	0.3	158	0	2	0	8.8	1.4
TAP	835	1	2	1.7	-0.2	827	0	3	0	8.3	1.3
THA	323	1	2	1.9	-0.8	321	0	2	1	7.2	1.3
TIH	146	1	4	1.7	-0.3	144	0	3	0	7.8	2.1
TOW	138	0	3	2.2	-0.1	145	0	4	0	10.2	1.3
TSC	241	0	7	2.4	-0.6	247	0	9	0	9.6	2.1
TWA	1585	0	2	1.9	-0.1	1571	0	3	0	7.8	1.6
UAL	91358	1	3	1.3	0.1	91333	0	3	1	6.3	0.8
ULE	114	1	2	1.4	-0.2	117	0	3	0	7.0	1.5
UPS	600	1	9	1.9	-0.5	597	0	8	0	8.4	1.5

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
USA	87	0	2	1.9	-0.7	83	0	5	0	7.7	1.9
VIA	656	1	1	1.4	0.3	660	0	3	2	7.0	1.5
VIR	147	2	3	2.2	-0.3	148	0	3	0	7.7	2.4
VRG	65	5	5	1.9	-0.2	68	0	9	3	9.5	1.3
VSP	102	0	1	1.5	0.1	101	0	2	0	7.8	1.2
WOA	135	1	3	1.9	0.2	135	0	2	0	6.7	1.2
AN	24120	0	1	1.5	0.2	23897	0	1	0	6.7	1.5
BA	14476	0	6	1.6	0.5	14444	0	6	0	6.9	1.3
DL	731	0	100	2.2	0.4	729	2	100	0	27.9	1.4
KL	1124	0	4	1.3	0.3	1121	0	18	1	10.1	1.0
LH	119	2	5	2.2	1.7	119	0	20	0	7.1	1.5
NW	54694	0	2	1.3	0.1	54630	0	1	0	6.2	0.9
QF	11545	0	1	1.3	0.2	11504	0	1	0	6.5	1.2
M	362	1	5	3.2	0.9	381	0	8	0	11.0	3.3
N	431	2	4	2.5	0.7	431	0	2	0	7.5	2.3

FIGURE 3

MEAN DAILY COUNT OF AIRCRAFT 70 - 500 HPA
AUGUST 1994
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED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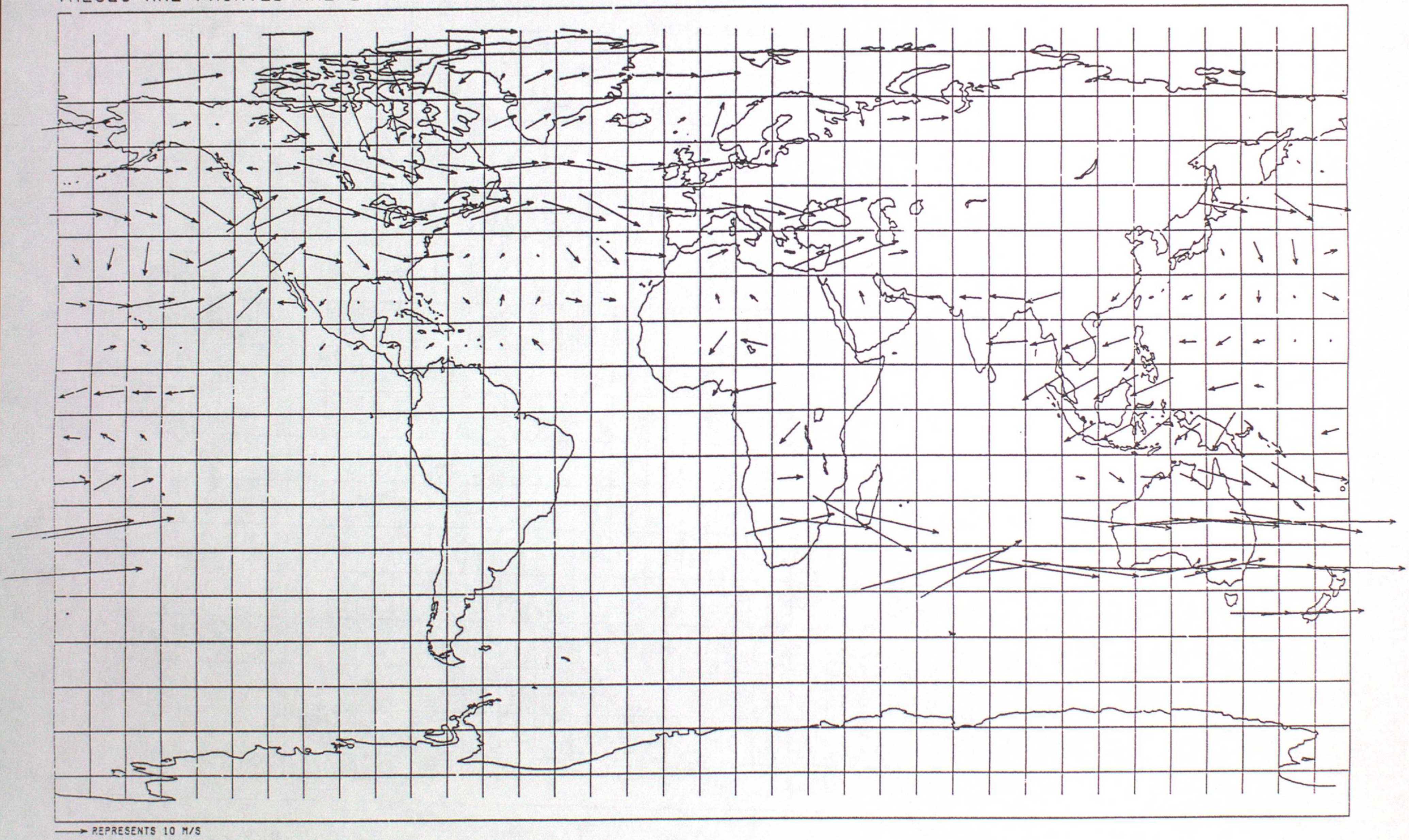
0 2 0 0 5 4 9 7 9 3 5 3 2 1 0 0
0 35 32 17 3 2 2 22 60 78 77 27 6 0 2 1 1 1 0 0
3 21 26 49 103 78 64 67 34 3 8 9 25 122 139 140 141 68 9 2 1 0 0 0 0 0
50 45 47 54 81 257 331 523 641 358 26 60 77 76 93 14 10 13 16 1 0 0 0 0 25 40 72 51
27 5 2 13 87 213 601 474 367 325 155 18 35 42 46 19 18 7 0 40 12 15 0 1 0 0 63 107 93 46
23 60 101 100 29 4 15 77 68 86 33 30 27 28 11 3 4 1 0 3 14 16 16 10 2 1 2 11 28 21 4 4 6
1 2 3 5 1 0 0 5 37 11 2 8 15 2 0 1 1 2 4 0 1 1 5 10 5 15 0 4 13 3 5 2
1 4 6 3 1 0 1 1 1 1 0 1 0 1 0 0 0 2 3 1 0 0 2 8 2 3 1 9 3 0 0
17 15 3 1 0 0 0 1 0 0 0 0 1 3 0 1 1 12 16 0 10
16 6 1 0 0 0 1 0 0 0 0 0 3 1 0 3 27 19 43 56 1 10 17
9 4 1 0 0 0 0 1 1 0 0 1 0 3 1 1 1 1 1 0 31 23 62 130 168 30 21
2 1 0 1 1 0 0 0 1 0 0 0 1 1 1 1 1 1 1 15 26 55 377 203 69 10
0 0 0 0 0 0 0 0 0 0 0 2 1 17 4
0 0 0 0 0 0
0 0 0
0

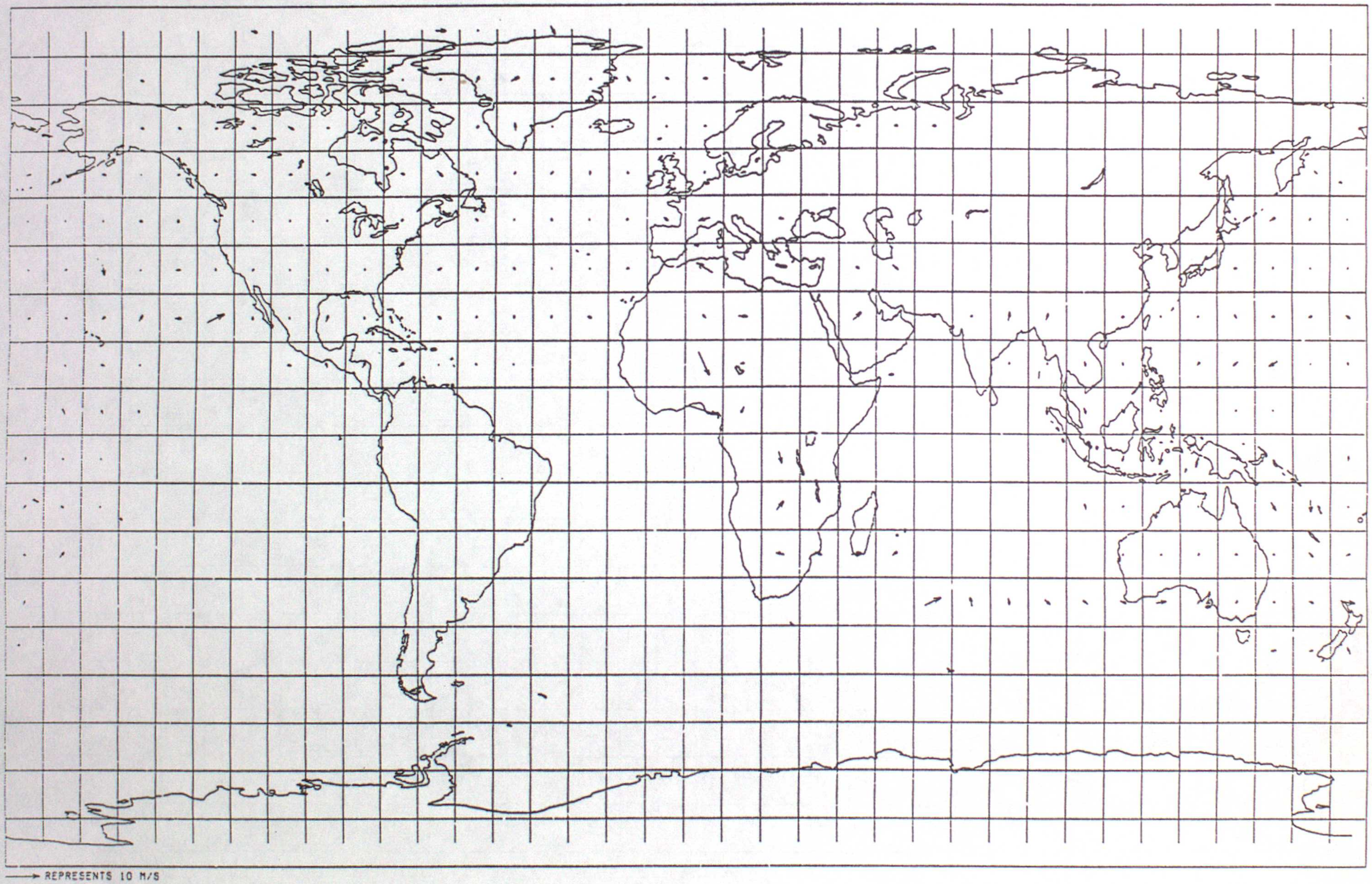
AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA
AUGUST 1994
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 4

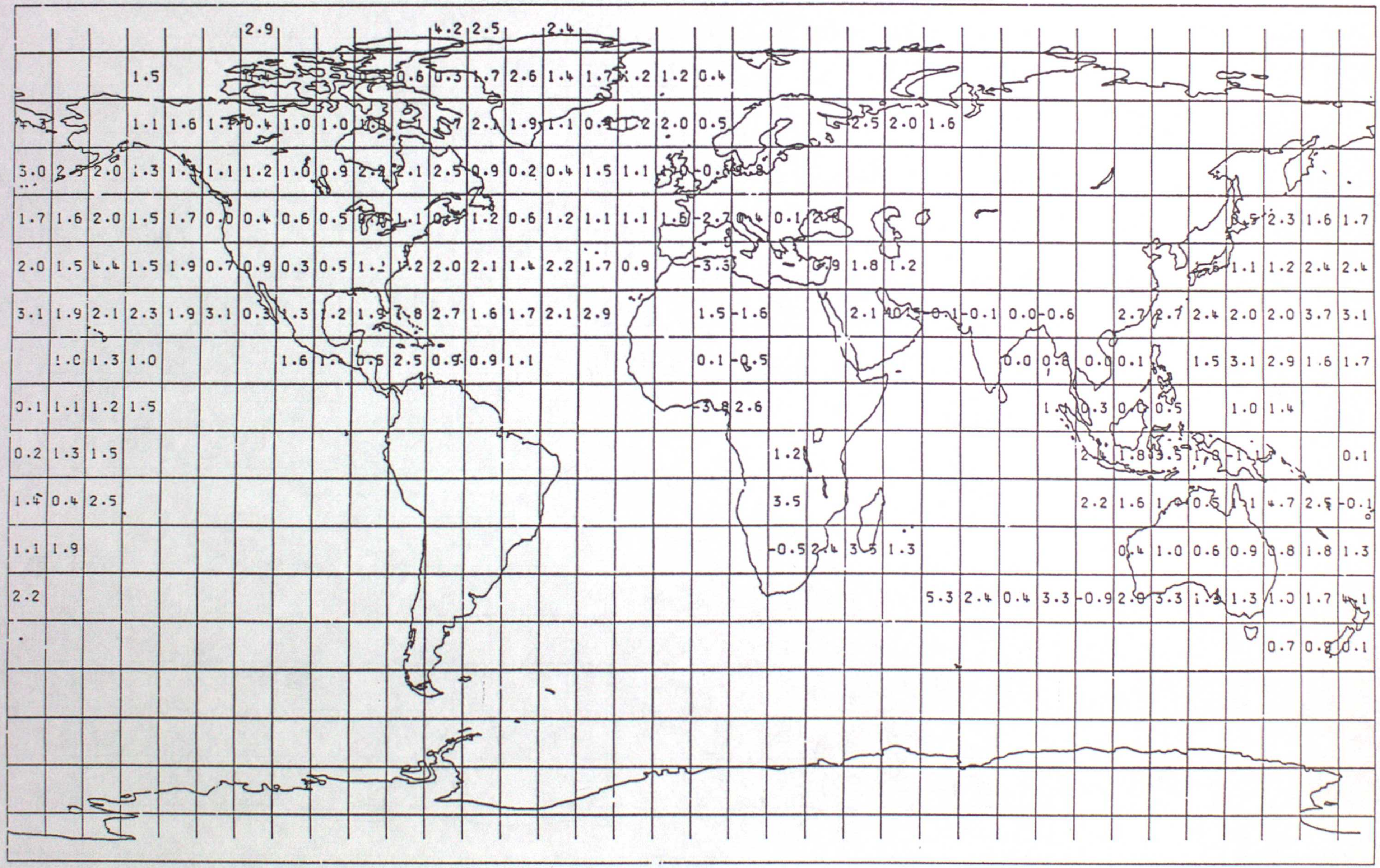


AIRCRAFT MEAN O-B WINDS BETWEEN 70 AND 500 HPA
AUGUST 1994
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 5



AIRCRAFT : MEAN O-B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
AUGUST 1994
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WH_RE MORE THAN 30 OBS ARE PRESENT


2.9 4.2 2.5 2.4
1.5 0.6 0.3 1.7 2.6 1.4 1.7 1.2 1.2 0.4
1.1 1.6 0.4 1.0 1.0 7 2.1 1.9 1.1 0.9 2 2.0 0.5 2.5 2.0 1.6
3.0 2.5 2.0 1.3 1.1 1.2 1.0 0.9 2.2 2.1 2.5 0.9 0.2 0.4 1.5 1.1 -0.8
1.7 1.6 2.0 1.5 1.7 0.0 0.4 0.6 0.5 1.1 1.2 0.6 1.2 1.1 1.1 1.6 -2.7 0.4 0.1 2.8 2.3 1.6 1.7
2.0 1.5 4.4 1.5 1.9 0.7 0.9 0.3 0.5 1.2 1.2 2.0 2.1 1.4 2.2 1.7 0.9 -3.3 1.9 1.8 1.2 1.1 1.2 2.4 2.4
3.1 1.9 2.1 2.3 1.9 3.1 0.3 1.3 1.2 1.9 1.8 2.7 1.6 1.7 2.1 2.9 1.5 -1.6 2.1 -0.1 -0.1 0.0 -0.6 2.7 2.7 2.4 2.0 2.0 3.7 3.1
1.0 1.3 1.0 1.6 0.5 2.5 0.9 0.9 1.1 0.1 -0.5 0.0 0.8 0.0 0.1 1.5 3.1 2.9 1.6 1.7
0.1 1.1 1.2 1.5 -3.8 2.6 0.3 0.5 1.0 1.4
0.2 1.3 1.5 1.2 2.4 1.8 3.5 1.8 -1.1 0.1
1.4 0.4 2.5 3.5 2.2 1.6 1.0 0.5 1.1 4.7 2.5 -0.1
1.1 1.9 -0.5 2.4 3.5 1.3 0.4 1.0 0.6 0.9 0.8 1.8 1.3
2.2 5.3 2.4 0.4 3.3 -0.9 2.9 3.3 1.3 1.3 1.0 1.7 4.1
0.7 0.8 0.1

AIRCRAFT : RMS O-B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
AUGUST 1994
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

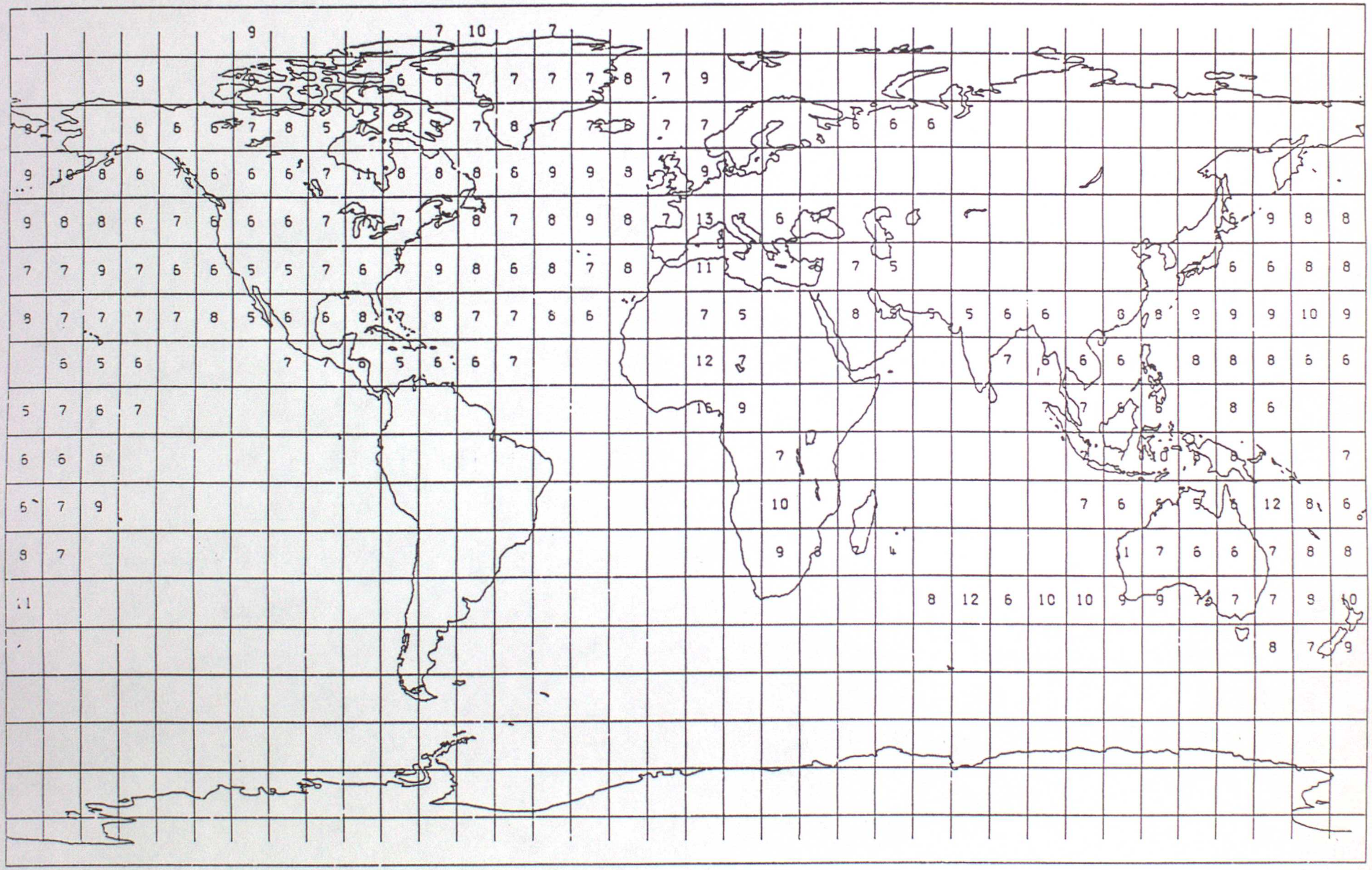

9 7 10 7
9 6 6 7 7 7 7 8 7 9
8 6 6 6 7 8 5 7 8 7 7 7 7 6 6 6
9 10 8 6 7 6 6 6 7 11 8 8 8 6 9 9 8 9
9 8 8 6 7 6 6 6 7 7 8 7 8 9 8 7 13 6 6 9 8 8
7 7 9 7 6 6 5 5 7 6 7 9 8 6 8 7 8 11 7 5 6 6 8 8
8 7 7 7 7 8 5 6 6 8 7 8 7 7 8 6 7 5 8 5 5 6 6 8 8 9 9 9 10 9
6 5 6 7 7 6 5 6 6 7 12 7 7 6 6 6 8 8 8 6 6
5 7 6 7 16 9 7 6 6 8 6
6 6 6 7 10 8 7
6 7 9 10 7 6 5 5 6 12 8 6
8 7 9 8 7 4 1 7 6 6 7 8 8
11 8 12 6 10 10 9 9 7 7 7 9 10
8 7 9

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA : ≥ 3 levels with ≥ 10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

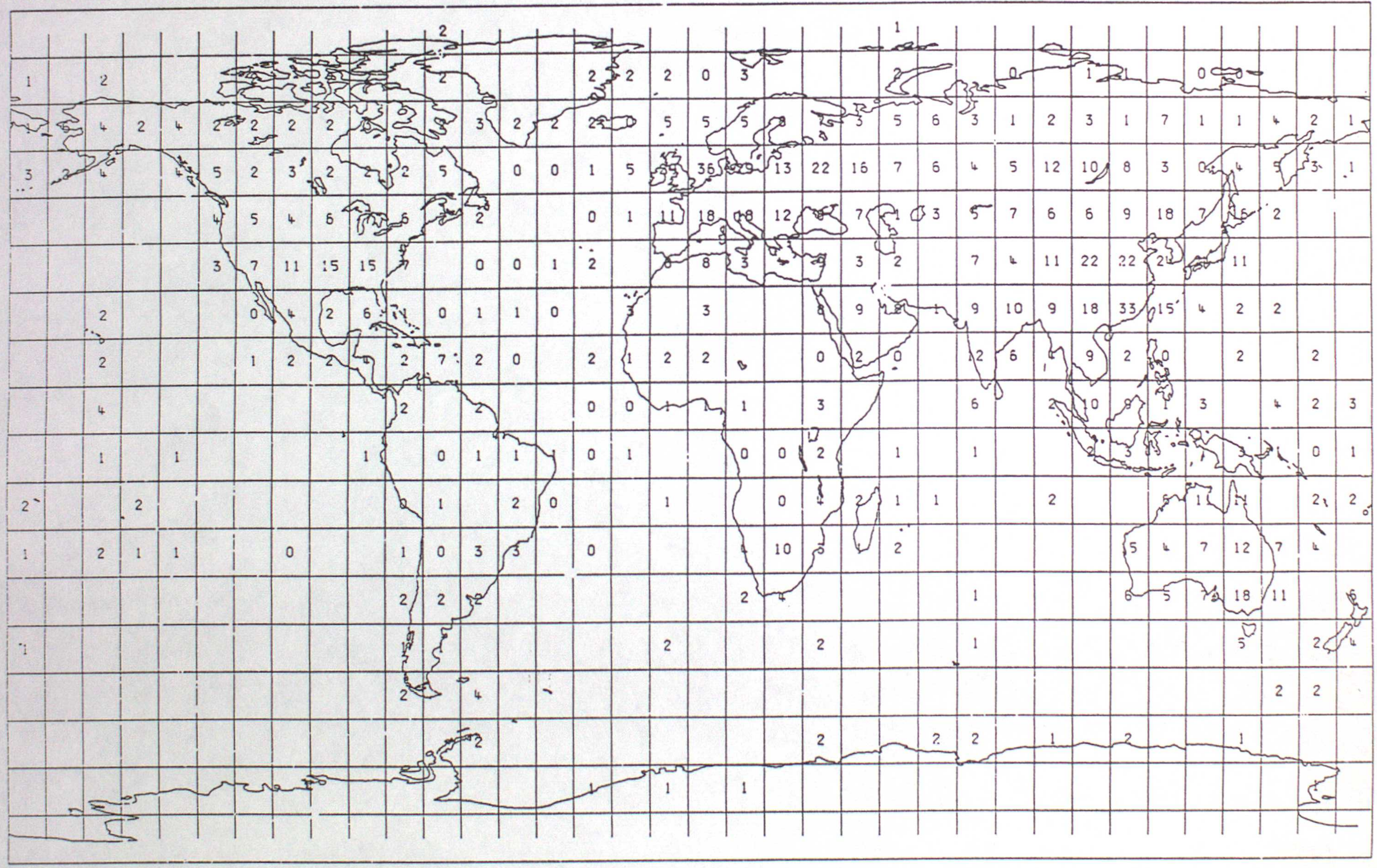
WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
33791	12	Z	70	48/ 33	15	0	53.1	144.5	153.9	5
37054	00	Z	300	44/ 43	19	0	34.7	-56.4	66.2	4
42027	00	Z	70	34/ 75	8	3	124.1	140.4	187.4	4
42027	12	Z	150	34/ 75	15	3	81.7	138.7	161.0	5
42101	00	Z	100	30/ 76	9	1	141.1	56.0	151.9	8
42339	00	Z	30	26/ 73	7	5	189.1	249.3	312.9	7
42339	12	Z	70	26/ 73	13	4	199.5	129.4	237.8	9
42361	00	Z	70	26/ 78	13	0	186.5	96.9	210.2	7
42361	12	Z	50	26/ 78	11	0	119.1	193.8	227.5	6
42379	00	Z	50	27/ 83	16	2	165.7	150.1	223.6	10
42379	12	Z	70	27/ 83	12	1	124.5	172.1	212.4	10
42410	00	Z	50	26/ 92	13	0	211.1	93.8	231.0	8
42410	12	Z	100	26/ 92	15	2	156.1	14.0	156.8	8
42701	00	Z	150	23/ 85	16	0	126.4	12.6	127.0	6
42724	00	Z	100	24/ 91	12	0	149.7	79.4	169.4	5
42724	12	Z	150	24/ 91	14	0	103.5	47.3	113.8	5
42809	00	Z	50	23/ 88	14	1	98.2	126.5	160.1	5
42867	00	Z	30	21/ 79	17	2	170.9	106.2	201.3	6
42867	12	Z	30	21/ 79	11	0	105.2	193.1	219.9	7
42971	00	Z	70	20/ 86	23	0	154.8	108.2	188.8	7
42971	12	Z	70	20/ 86	14	1	199.1	13.6	199.6	8
43003	12	Z	100	19/ 73	21	2	132.7	57.3	144.6	5
43014	00	Z	150	20/ 75	19	1	112.0	35.8	117.6	6
43014	12	Z	70	20/ 75	10	2	153.9	111.8	190.2	6
43128	12	Z	50	17/ 78	14	1	183.5	94.6	206.4	8
43150	12	Z	100	18/ 83	11	0	158.5	-52.2	166.9	5
43185	00	Z	100	16/ 81	18	2	134.1	57.2	145.8	8
43185	12	Z	70	16/ 81	15	2	118.3	223.5	252.9	8
43192	00	Z	100	15/ 74	19	2	139.7	-70.4	156.4	6
43192	12	Z	100	15/ 74	16	0	150.7	45.4	157.4	6
43279	00	Z	50	13/ 80	17	0	137.2	56.0	148.2	6
43285	00	Z	150	13/ 75	20	0	123.6	-42.4	130.7	6
43285	12	Z	30	13/ 75	12	2	182.4	198.7	269.8	10
43295	00	Z	50	13/ 78	11	1	83.0	234.8	249.0	7
43295	12	Z	150	13/ 78	23	0	56.3	158.4	168.2	7
43333	00	Z	70	12/ 93	12	0	124.1	73.6	144.3	4
43346	00	Z	50	11/ 80	16	1	171.8	118.9	208.9	6
43346	12	Z	70	11/ 80	15	3	131.6	53.0	141.9	7
43353	12	Z	150	10/ 76	16	0	99.8	26.8	103.3	4
43369	00	Z	100	8/ 73	17	0	108.3	-50.8	119.6	4
43369	12	Z	30	8/ 73	14	0	186.7	99.1	211.4	7
43371	00	Z	70	8/ 77	24	0	199.7	-88.5	218.4	8
43371	12	Z	30	8/ 77	11	1	232.0	37.7	235.1	8
47058	12	Z	200	39/ 126	18	0	92.4	5.3	92.6	5
52323	12	Z	70	42/ 97	27	0	55.6	138.0	148.8	6
52836	12	Z	30	36/ 98	21	1	58.0	179.3	188.5	6
53463	00	Z	100	41/ 112	29	0	29.4	107.8	111.8	4
53513	12	Z	70	41/ 107	27	0	66.1	135.0	150.3	6
54135	00	Z	70	44/ 122	27	1	69.6	147.4	163.0	8
54135	12	Z	70	44/ 122	24	0	61.6	117.3	132.5	4
54161	00	Z	70	44/ 125	26	0	75.0	126.6	147.1	6
54218	00	Z	30	42/ 119	27	0	57.1	185.8	194.4	7
54342	00	Z	150	42/ 123	28	0	38.6	100.0	107.2	7
54342	12	Z	150	42/ 123	29	0	36.1	102.1	108.3	7
54374	00	Z	70	42/ 127	27	0	47.7	118.1	127.4	5
54497	00	Z	70	40/ 124	22	0	48.7	144.6	152.6	6
54511	12	Z	150	40/ 116	28	0	31.3	89.2	94.6	4
54662	00	Z	200	39/ 122	27	0	37.7	76.9	85.6	4
56029	12	Z	70	33/ 97	23	0	78.3	125.9	148.3	5
56080	12	Z	100	35/ 103	29	0	43.2	108.9	117.1	5

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
56294	00	Z	100	31/ 104	27	0	28.0	109.7	113.3	4
56294	12	Z	100	31/ 104	24	0	43.2	122.9	130.3	6
56691	12	Z	100	27/ 104	26	0	43.6	110.8	119.1	4
56739	12	Z	100	25/ 98	27	0	52.5	146.7	155.8	6
57679	00	Z	100	28/ 113	25	0	37.0	154.0	158.3	6
57679	12	Z	100	28/ 113	18	0	41.6	145.7	151.5	6
57957	00	Z	100	25/ 110	28	0	41.1	143.9	149.7	7
57957	12	Z	70	25/ 110	23	0	52.5	170.9	178.8	6
58027	00	Z	100	34/ 117	29	0	48.7	121.0	130.4	6
58027	12	Z	70	34/ 117	24	0	41.0	129.7	136.1	4
58203	00	Z	70	33/ 116	27	0	50.4	112.7	123.4	5
58203	12	Z	70	33/ 116	25	0	87.9	125.2	152.9	6
58238	00	Z	100	32/ 119	27	0	34.7	113.5	118.7	4
58424	00	Z	100	31/ 117	28	0	35.6	142.0	146.4	7
58424	12	Z	100	31/ 117	26	0	40.6	145.9	151.5	7
58665	00	Z	100	29/ 121	22	0	28.2	114.2	117.6	5
58847	00	Z	100	26/ 119	25	2	40.1	157.8	162.8	7
58847	12	Z	70	26/ 119	25	0	46.9	162.9	169.5	5
59287	12	Z	70	23/ 113	23	0	52.6	111.3	123.1	4
59758	12	Z	100	20/ 110	23	0	48.3	115.0	124.8	4
62378	12	Z	70	30/ 31	10	5	35.8	304.8	306.9	6
70414	00	Z	70	53/ 174	9	2	139.3	200.8	244.4	6
72681	00	Z	30	44/-116	15	0	44.0	207.3	211.9	4
89009	00	Z	400	-90/ 0	18	0	60.0	1.6	60.1	4
91557	12	Z	700	-18/ 168	17	10	10.0	-85.6	86.2	8
96163	00	Z	250	-1/ 100	16	5	119.8	19.5	121.3	8
96237	00	Z	70	-2/ 106	11	1	153.0	32.0	156.3	6
97014	00	Z	100	2/ 125	18	0	102.7	-109.8	150.4	7

AVAILABILITY - TEMP - 500 HPA GEOPOTENTIAL - AUGUST 1994

FIGURE 8

ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS - 1345


2 1
1 2 2 2 2 2 0 3 2 0 1 1 0 0
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3 4 5 2 3 2 2 2 5 0 0 1 5 36 13 22 16 7 6 4 5 12 10 8 3 0 4 5 3 1
4 5 4 6 5 2 0 1 11 18 18 12 7 1 3 5 7 6 6 9 18 7 6 2
3 7 11 15 15 7 0 0 1 2 8 8 3 3 2 7 4 11 22 22 2 11
2 0 4 2 6 1 0 1 1 0 3 3 9 9 1 9 10 9 18 33 15 4 2 2
2 1 2 2 2 7 2 0 2 1 2 2 0 2 0 2 6 9 2 0 2 2
4 2 2 0 0 1 1 3 6 2 10 8 1 3 4 2 3
1 1 1 0 1 1 1 0 1 0 0 2 1 1 2 3 3 0 1
2 2 0 1 2 0 1 0 4 2 1 1 2 1 1 2 2
1 2 1 1 0 1 0 3 3 0 10 2 5 4 7 12 7 4
2 2 2 2 1 6 5 7 18 11 6
1 2 2 1 5 2 4
2 4 2 2
2 2 2 2 1 2 1
1 1 1

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : $\geq$ 10 observations and $\geq$ 15 m s^{-1} RMS vector wind.

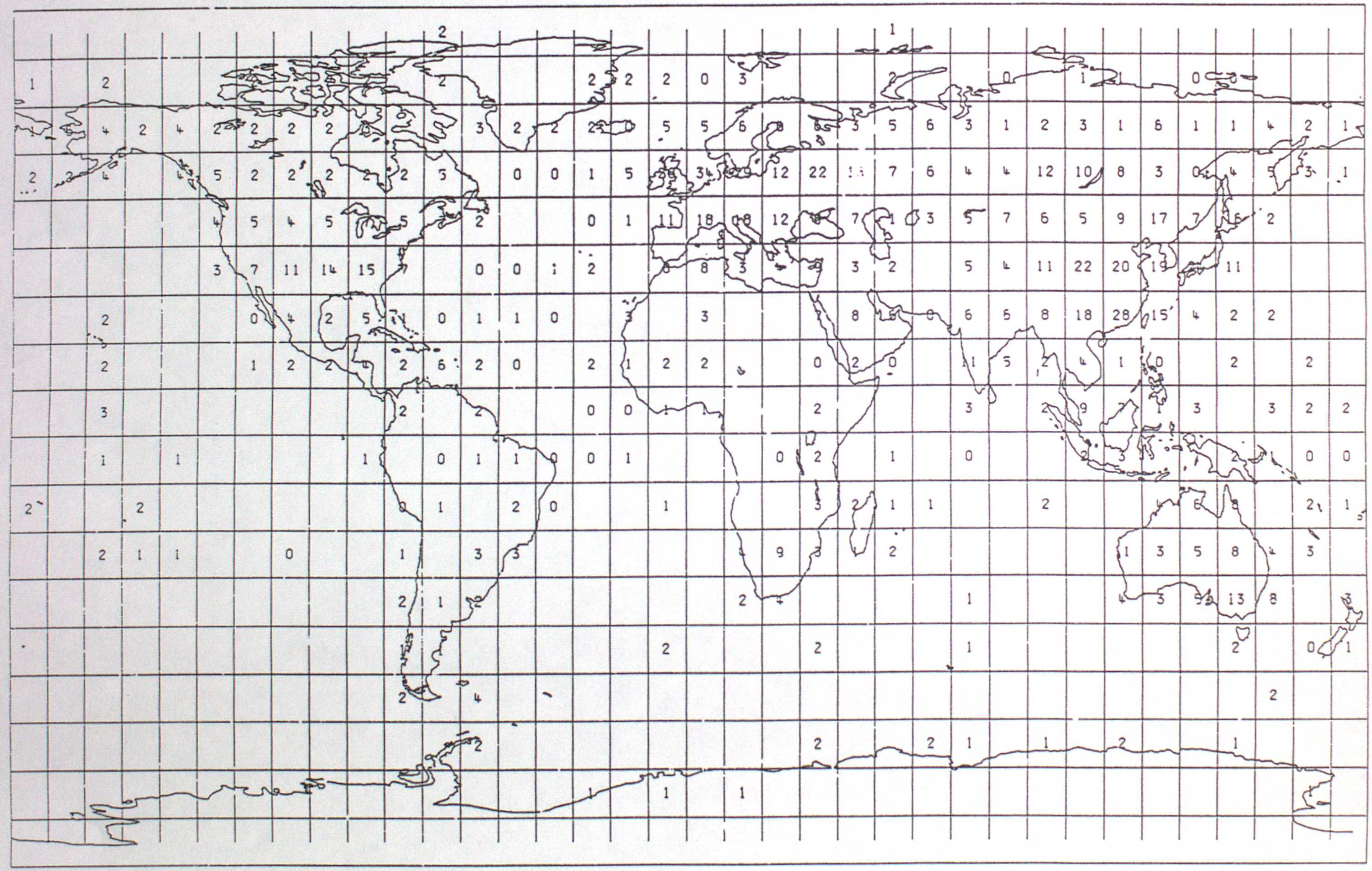
ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
43014	12	V	100	20/ 75	11	0	18	-7.7	-6.9	17.6	1
62721	12	V	200	16/ 33	10	0	0	-15.1	-0.7	15.9	1
68174	00	V	200	-24/ 29	29	0	24	-5.3	1.2	15.6	1
68174	12	V	200	-24/ 29	29	0	20	-5.8	0.3	15.1	1
80001	12	V	250	13/ -82	12	0	8	-3.3	-0.2	16.4	1

AVAILABILITY - TEMP/PILOT - 300 HPA WIND - AUGUST 1994

FIGURE 9

ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS - 1216


2 1
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4 2 4 2 2 2 2 3 2 2 2 5 5 6 8 3 5 6 3 1 2 3 1 6 1 1 4 2 1
2 3 4 4 5 2 2 2 2 2 5 0 0 1 5 34 12 22 7 6 4 4 12 10 8 3 0 4 5 3 1
4 5 4 5 5 2 0 1 11 18 12 7 1 3 5 7 6 5 9 17 7 6 2
3 7 11 14 15 7 0 0 2 8 3 3 2 5 4 11 22 20 19 11
2 0 4 2 5 0 1 1 0 3 3 8 6 6 5 8 18 28 15 4 2 2
2 1 2 2 2 6 2 0 2 1 2 2 0 2 0 5 2 4 1 0 2 2
3 2 2 0 0 1 2 3 2 9 1 3 3 2 2
1 1 1 0 1 1 0 0 1 0 2 1 0 2 3 2 0 0
2 2 1 2 0 1 3 2 1 1 2 4 6 8 2 1
2 1 1 0 1 3 3 9 3 1 2 1 3 5 8 4 3
2 1 2 4 1 4 3 13 8 3
2 2 1 2 0 1
2 4 2
2 2 2 1 1 2 1
1 1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for radiosonde TEMPs.
Area monitored	:90°N - 90°S, 180°W - 180°E.
Standard of comparison	:Background field from Bracknell global model.
Observation times	:00 UTC and 12 UTC.
Level(s) monitored	:Standard levels between 500.0 - 150.0 hPa
Element monitored	:WIND DIRECTION in degrees

Parameters monitored

:NUM OBS	:Average number of observations at all levels.
:BIAS	:Mean difference of observations from background values from all levels.
:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
:SD	:SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and

ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
17280	00	DD	38/ 40	28	-11.3	8.0	10.1
38457	00	DD	41/ 69	29	-10.5	9.8	11.4
40265	00	DD	32/ 36	28	-71.6	3.2	21.5
40373	00	DD	28/ 46	9	10.9	7.7	25.2
40430	00	DD	25/ 40	16	19.3	8.6	17.2
40430	12	DD	25/ 40	18	11.6	7.6	21.7
40437	12	DD	25/ 47	20	10.7	7.6	22.7
41024	00	DD	22/ 39	24	10.7	9.6	16.8
41923	00	DD	24/ 90	17	13.9	9.1	22.0
42339	00	DD	26/ 73	15	16.9	6.0	18.2
42339	12	DD	26/ 73	16	15.1	6.9	20.1
42379	00	DD	27/ 83	20	10.7	9.6	25.8
47158	00	DD	35/ 127	20	11.8	6.3	22.7
57993	00	DD	26/ 115	15	-14.7	5.3	20.7
57993	12	DD	26/ 115	17	-10.5	8.8	25.4
58606	00	DD	29/ 116	18	-13.2	4.8	16.4
61901	12	DD	-16/ -6	14	11.0	9.0	25.3
67083	00	DD	-19/ 47	24	16.3	6.2	17.7
91517	00	DD	-9/ 160	14	10.9	8.8	24.8
97560	00	DD	-1/ 136	11	10.0	9.2	25.8

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH:August, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer:701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

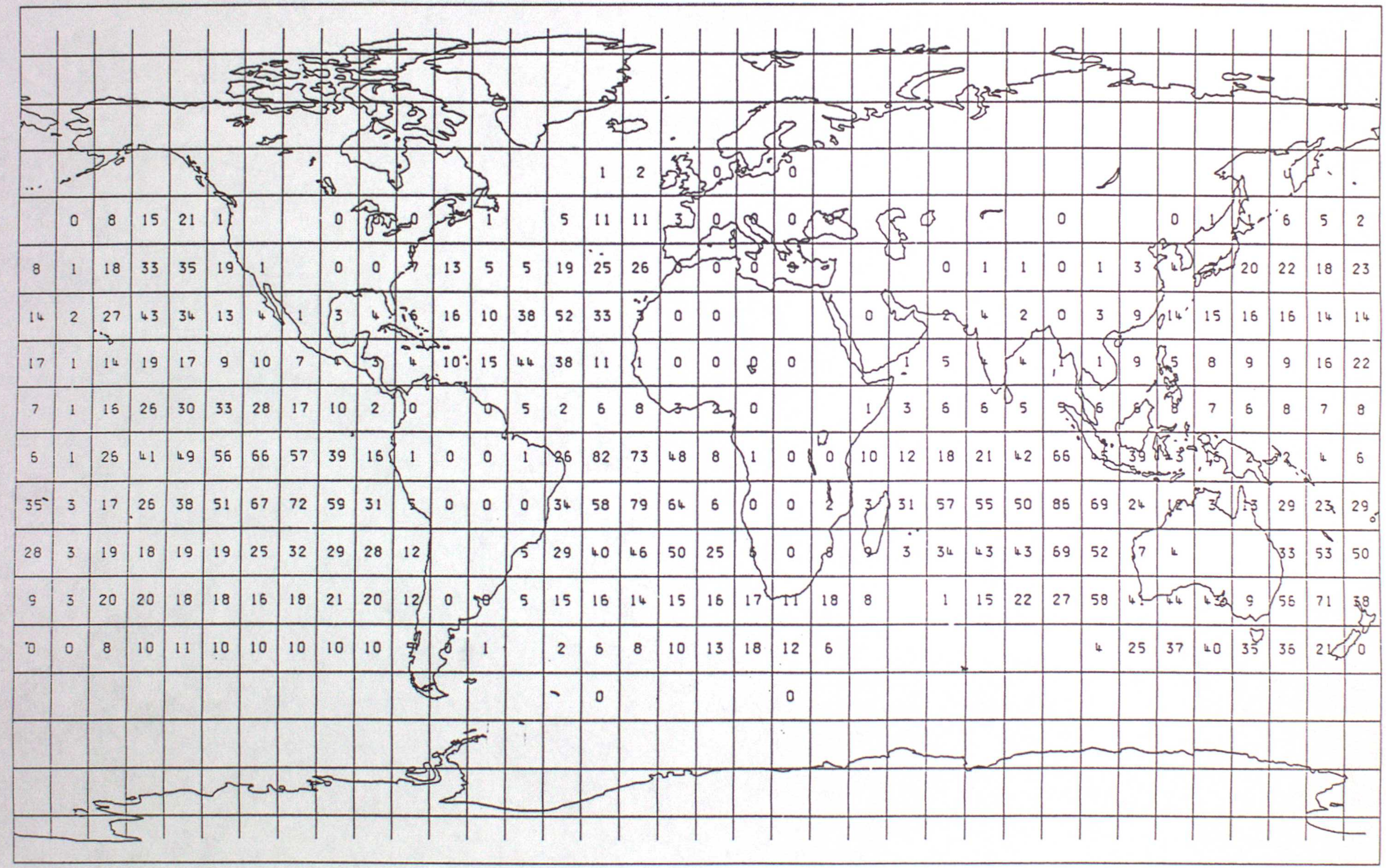
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

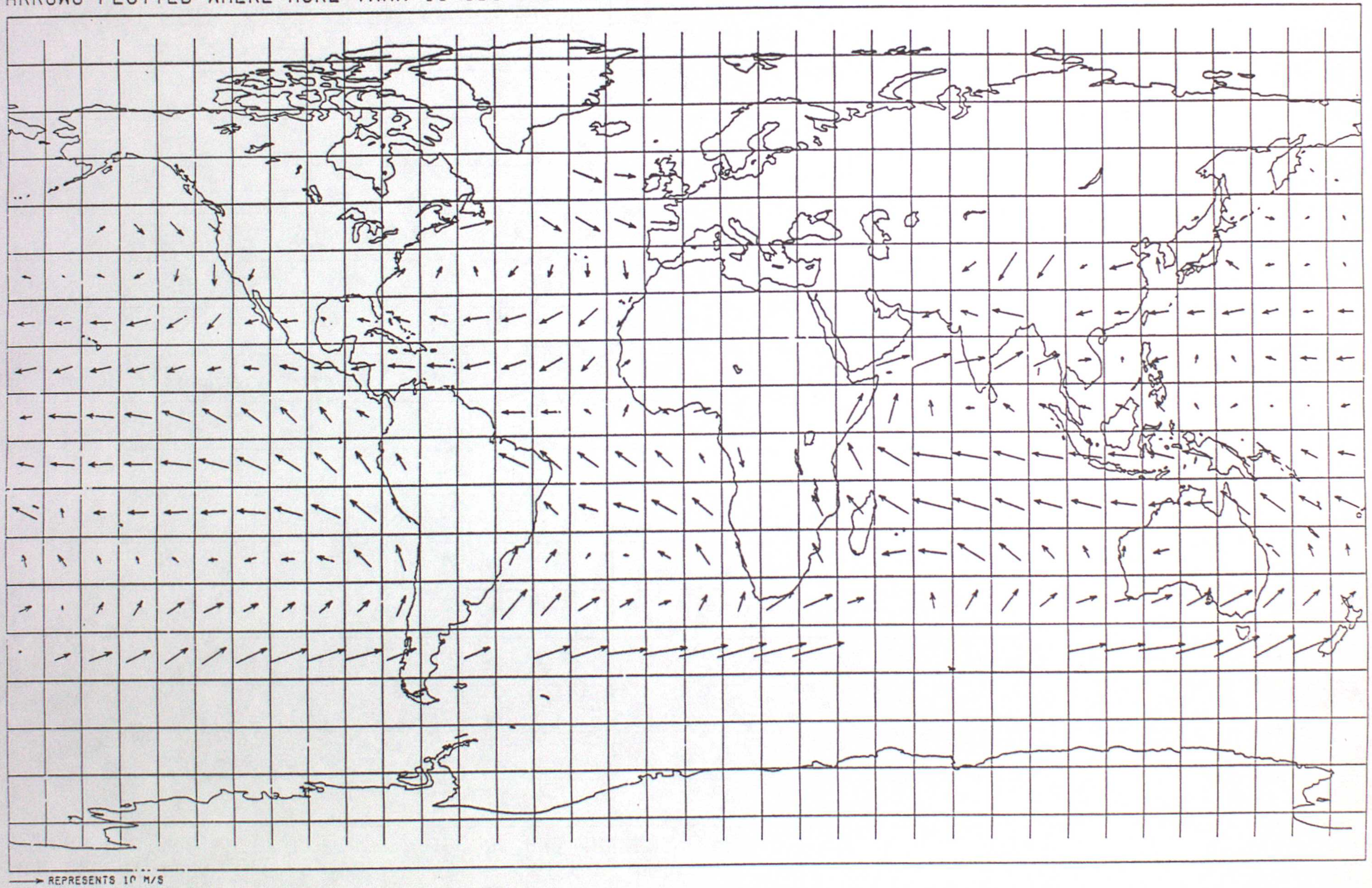
AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
AUGUST 1994



													1	2		0			0																
	0	8	15	21	1			0		0		1		5	11	11	3	0	0	0							0			0	1	1	6	5	2
8	1	18	33	35	19	1		0	0	7	13	5	5	19	25	26	0	0	0	0				0	1	1	0	1	3	4		20	22	18	23
14	2	27	43	34	13	4	1	3	4	16	16	10	38	52	33	3	0	0				0		2	4	2	0	3	9	14	15	16	16	14	14
17	1	14	19	17	9	10	7	4	3	4	10	15	44	38	11	1	0	0	0	0			1	5	4	4	1	1	9	5	8	9	9	16	22
7	1	16	26	30	33	28	17	10	2	0		0	5	2	6	8	3	2	0			1	3	6	6	5	5	6	6	8	7	6	8	7	8
5	1	26	41	49	56	66	57	39	16	1	0	0	1	26	82	73	48	8	1	0	0	10	12	18	21	42	66	5	39	13	15	2	2	4	6
35	3	17	26	38	51	67	72	59	31	5	0	0	0	34	58	79	64	6	0	0	2	3	31	57	55	50	86	69	24	12	3	13	29	23	29
28	3	19	18	19	19	25	32	29	28	12			5	29	40	46	50	25	5	0	8	9	3	34	43	43	69	52	7	4			33	53	50
9	3	20	20	18	18	16	18	21	20	12	0	8	5	15	16	14	15	16	17	11	18	8		1	15	22	27	58	41	44	43	9	56	71	38
0	0	8	10	11	10	10	10	10	10	5	0	1		2	6	8	10	13	18	12	6							4	25	37	40	35	36	21	0
															0					0															

FIGURE 11

SATOB VECTOR MEAN WINDS BETWEEN 701-1000 HPA
AUGUST 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

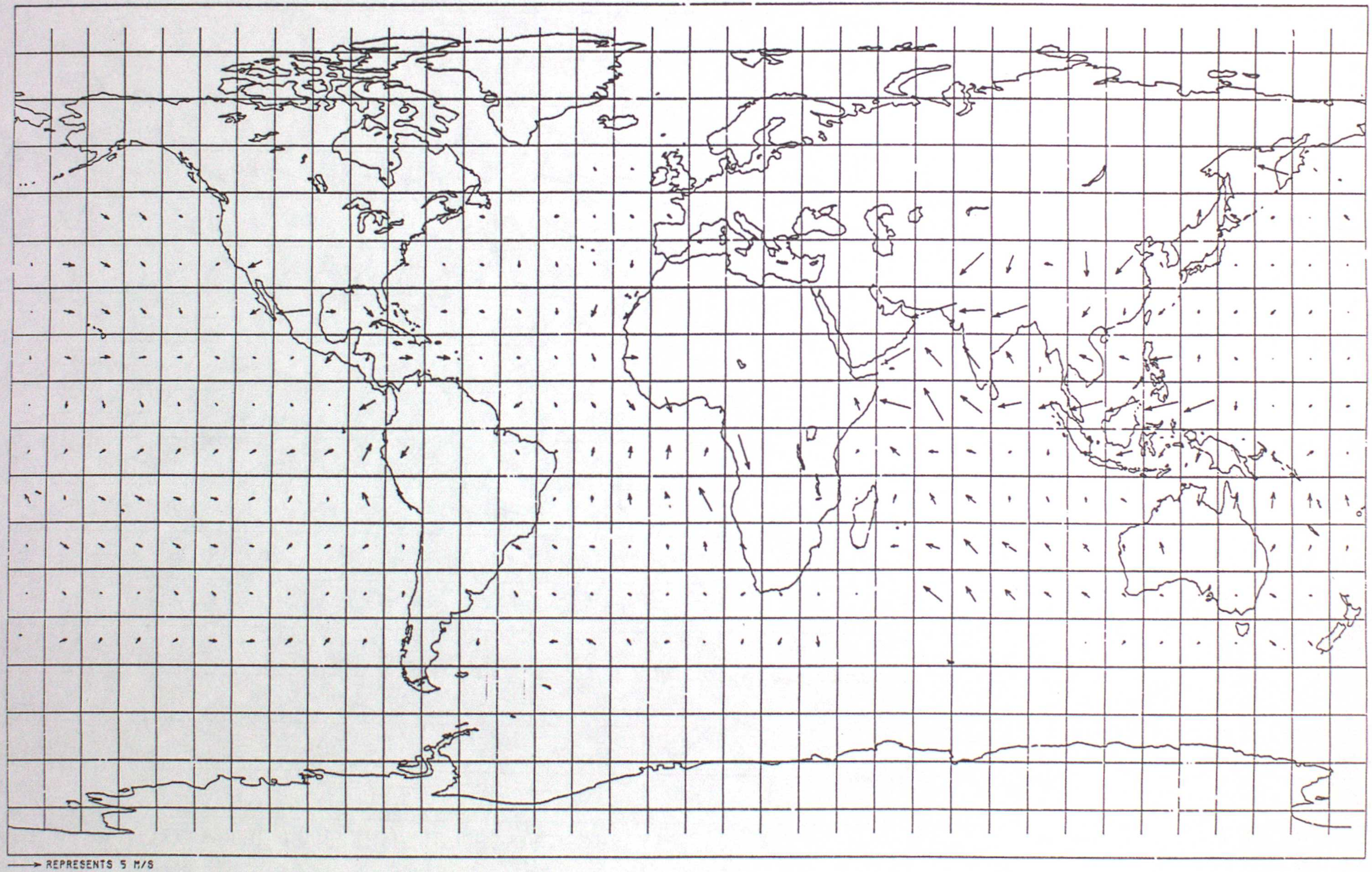
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 701-1000 HPA

AUGUST 1994

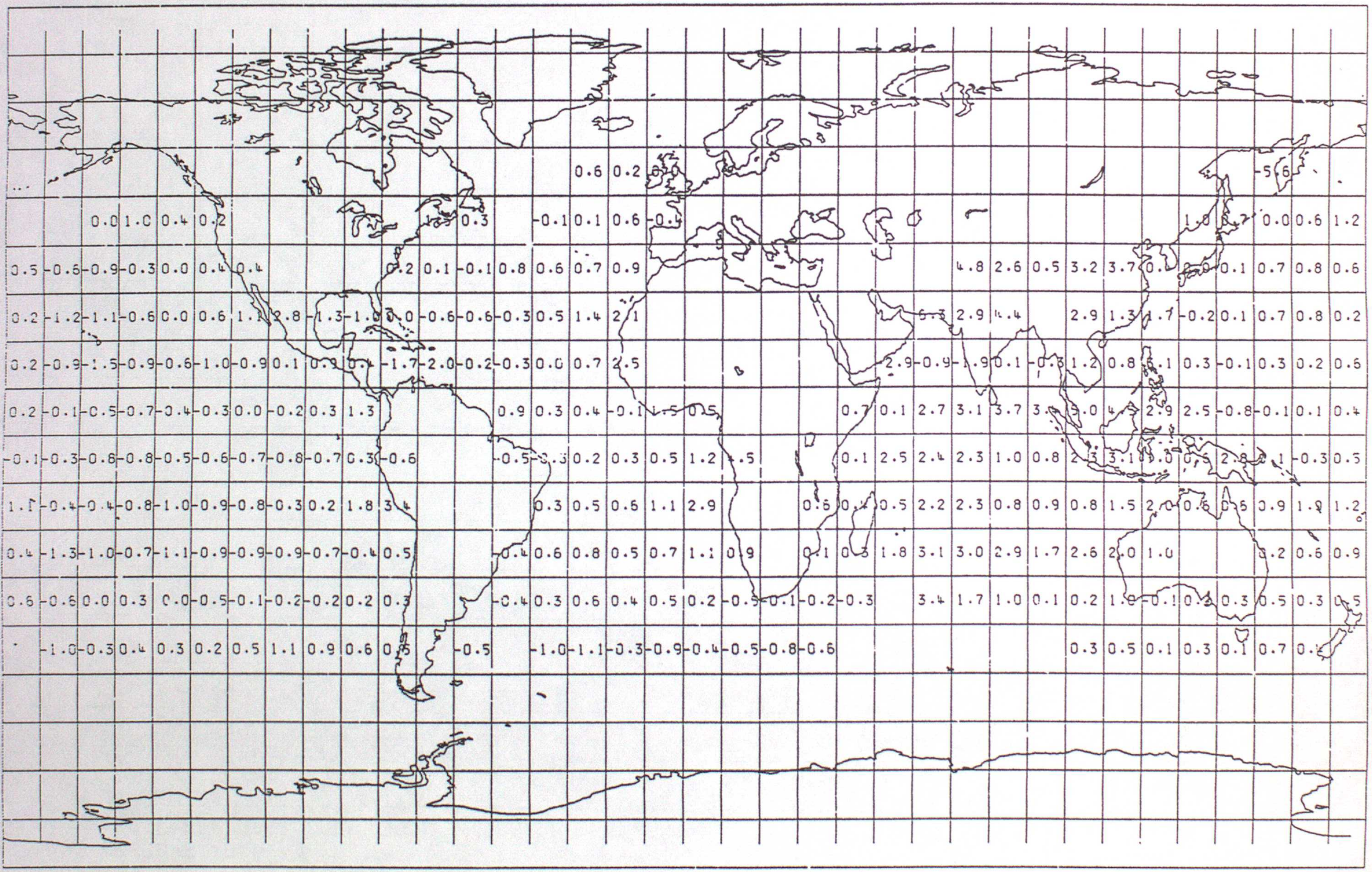
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

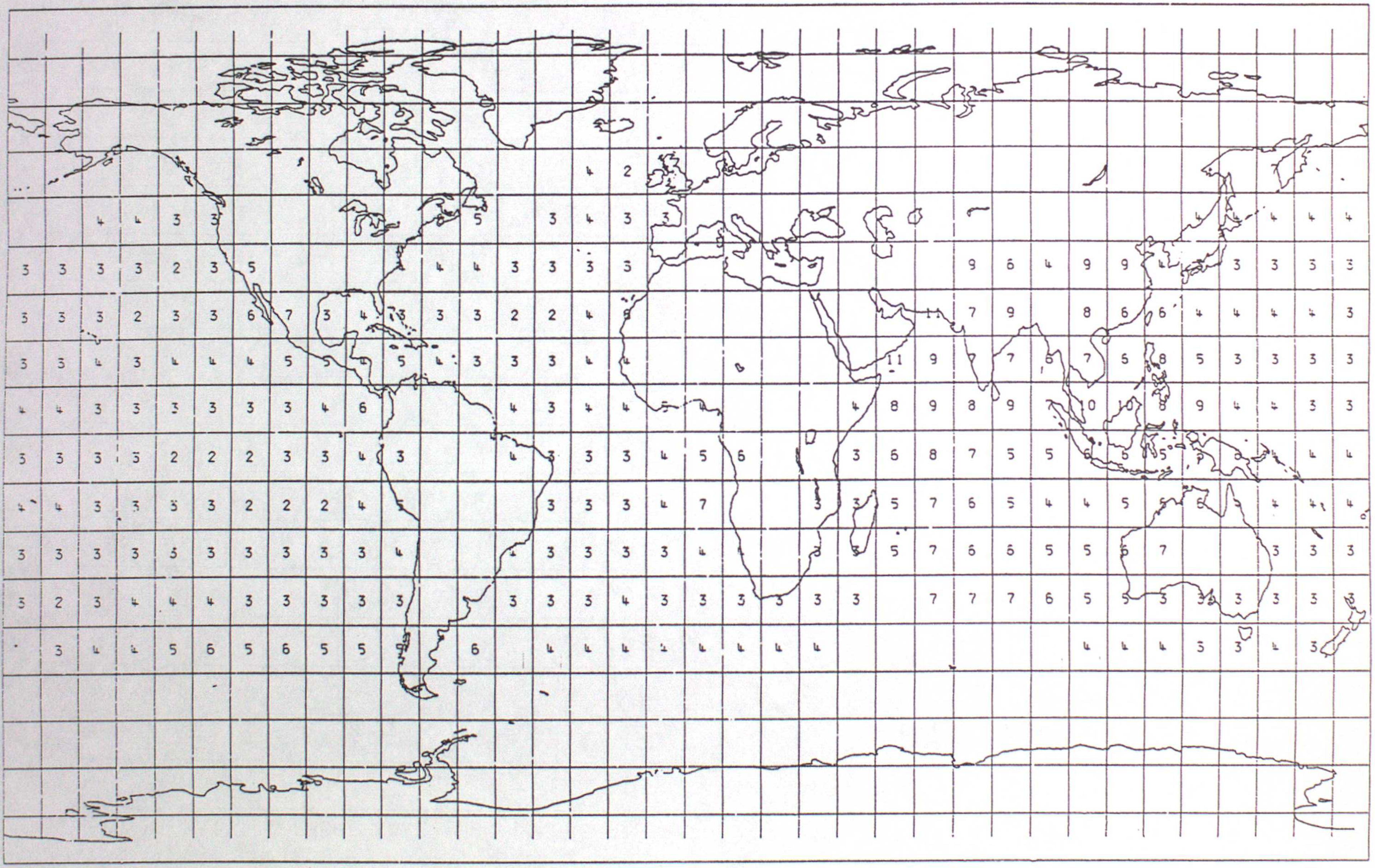
FIGURE 12



SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
AUGUST 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


... 0.6 0.2 -5.6
0.0 1.0 0.4 0.2 1.3 0.3 -0.1 0.1 0.6 -0.4 1.0 3.7 0.0 0.6 1.2
0.5 -0.6 -0.9 -0.3 0.0 0.4 0.4 0.2 0.1 -0.1 0.8 0.6 0.7 0.9 4.8 2.6 0.5 3.2 3.7 2.0 0.1 0.7 0.8 0.6
0.2 -1.2 -1.1 -0.6 0.0 0.6 1.1 2.8 -1.3 -1.0 0.0 -0.6 -0.6 -0.3 0.5 1.4 2.1 6.3 2.9 4.4 2.9 1.3 1.7 -0.2 0.1 0.7 0.8 0.2
0.2 -0.9 -1.5 -0.9 -0.6 -1.0 -0.9 0.1 0.9 0.4 -1.7 -2.0 -0.2 -0.3 0.0 0.7 2.5 2.9 -0.9 -1.9 0.1 -0.3 1.2 0.8 6.1 0.3 -0.1 0.3 0.2 0.6
0.2 -0.1 -0.5 -0.7 -0.4 -0.3 0.0 -0.2 0.3 1.3 0.9 0.3 0.4 -0.1 1.5 0.5 0.7 0.1 2.7 3.1 3.7 3.4 3.0 4.3 2.9 2.5 -0.8 -0.1 0.1 0.4
-0.1 -0.3 -0.8 -0.8 -0.5 -0.6 -0.7 -0.8 -0.7 0.3 -0.6 -0.5 -0.3 0.2 0.3 0.5 1.2 1.5 0.1 2.5 2.4 2.3 1.0 0.8 2.3 3.1 3.0 0.5 2.8 0.1 -0.3 0.5
1.1 -0.4 -0.4 -0.8 -1.0 -0.9 -0.8 -0.3 0.2 1.8 3.4 0.3 0.5 0.6 1.1 2.9 0.6 0.4 0.5 2.2 2.3 0.8 0.9 0.8 1.5 2.0 0.6 0.5 0.9 1.9 1.2
0.4 -1.3 -1.0 -0.7 -1.1 -0.9 -0.9 -0.9 -0.7 -0.4 0.5 -0.4 0.6 0.8 0.5 0.7 1.1 0.9 0.1 0.3 1.8 3.1 3.0 2.9 1.7 2.6 2.0 1.0 0.2 0.6 0.9
0.6 -0.6 0.0 0.3 0.0 -0.5 -0.1 -0.2 -0.2 0.2 0.3 -0.4 0.3 0.6 0.4 0.5 0.2 -0.5 -0.1 -0.2 -0.3 3.4 1.7 1.0 0.1 0.2 1.0 -0.1 0.3 0.3 0.5 0.3 0.5
-1.0 -0.3 0.4 0.3 0.2 0.5 1.1 0.9 0.6 0.5 -0.5 -1.0 -1.1 -0.3 -0.9 -0.4 -0.5 -0.8 -0.6 0.3 0.5 0.1 0.3 0.1 0.7 0.4

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
AUGUST 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
AUGUST 1994

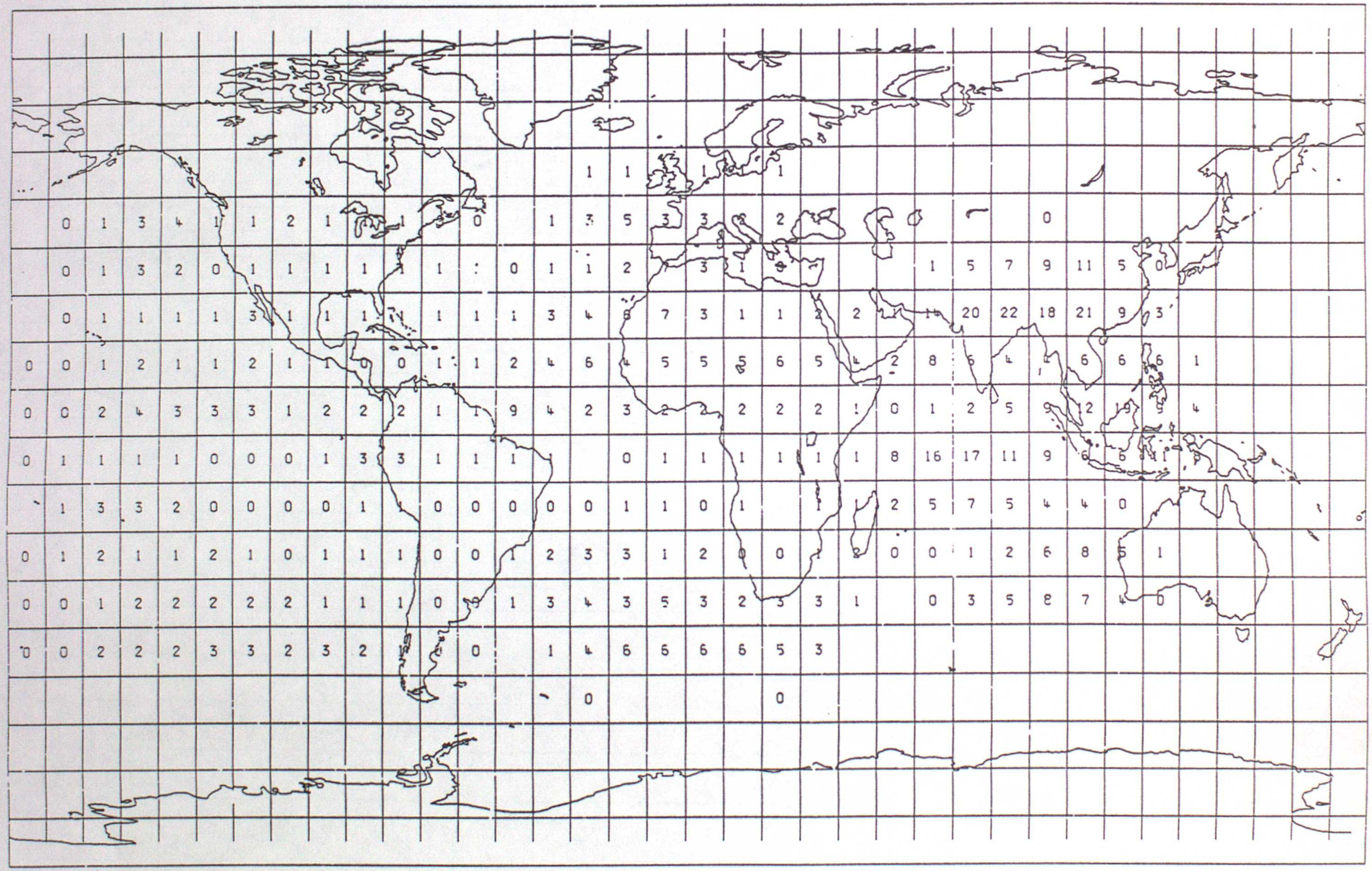
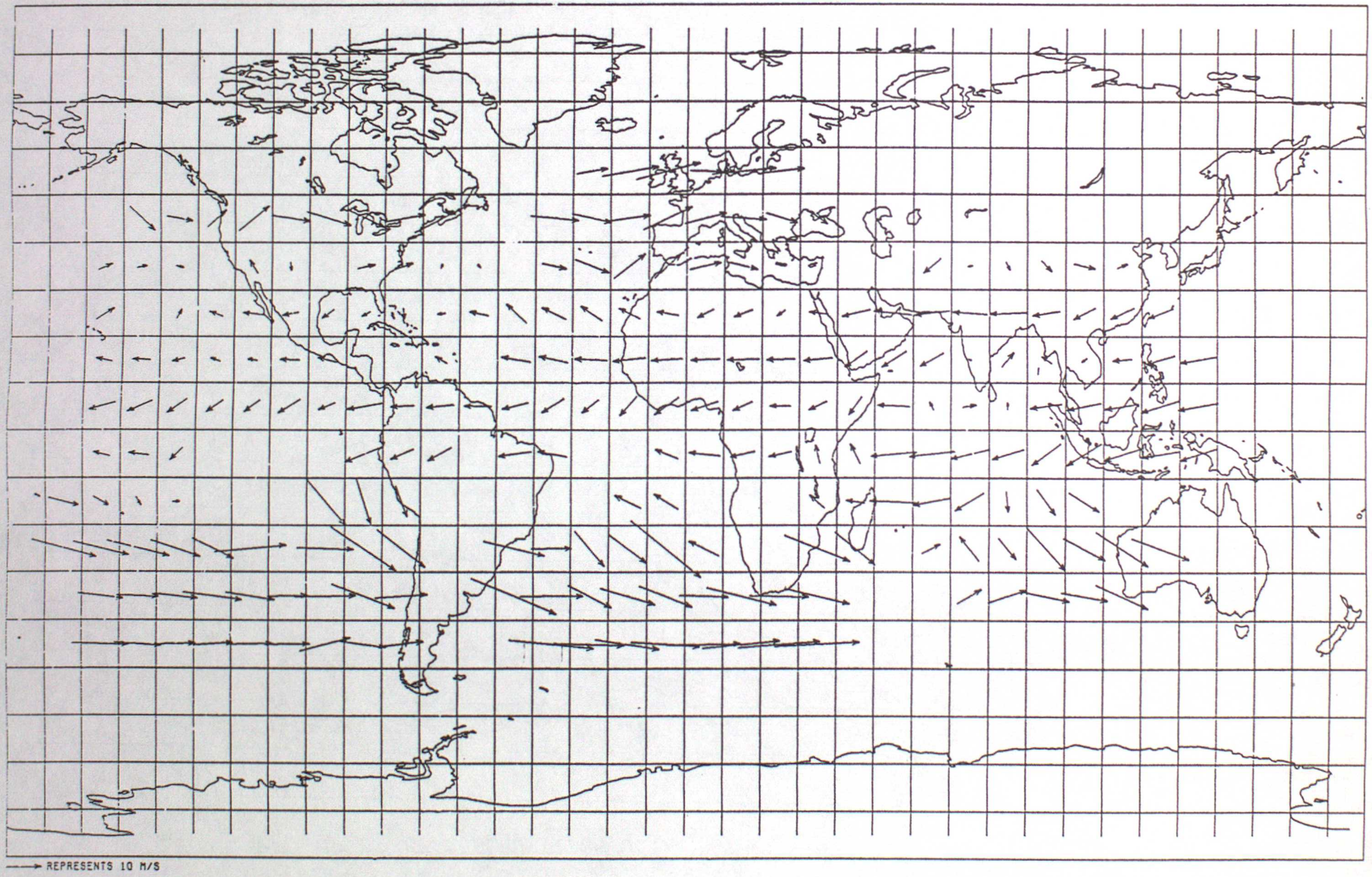

1 1 1 1 1
0 1 3 4 1 1 2 1 1 3 0 1 3 5 3 3 2 0
0 1 3 2 0 1 1 1 1 1 1 0 1 1 2 3 1 1 5 7 9 11 5 0
0 1 1 1 1 3 1 1 1 1 1 1 1 3 4 6 7 3 1 1 2 2 14 20 22 18 21 9 3
0 0 1 2 1 1 2 1 1 0 0 1 1 2 4 6 4 5 5 5 6 5 4 2 8 6 4 4 6 6 6 1
0 0 2 4 3 3 3 1 2 2 2 1 1 9 4 2 3 2 2 2 2 2 1 0 1 2 5 9 12 19 9 4
0 1 1 1 1 0 0 0 1 3 3 1 1 1 1 0 1 1 1 1 1 1 8 16 17 11 9 6 6 11
1 3 3 2 0 0 0 0 1 1 0 0 0 0 0 1 1 0 1 1 1 2 5 7 5 4 4 0
0 1 2 1 1 2 1 0 1 1 1 0 0 1 2 3 3 1 2 0 0 1 2 0 0 1 2 6 8 5 1
0 0 1 2 2 2 2 2 1 1 1 0 0 1 3 4 3 5 3 2 3 3 1 0 3 5 8 7 4 0
0 0 2 2 2 3 3 2 3 2 0 1 4 6 6 6 6 5 3
0 0

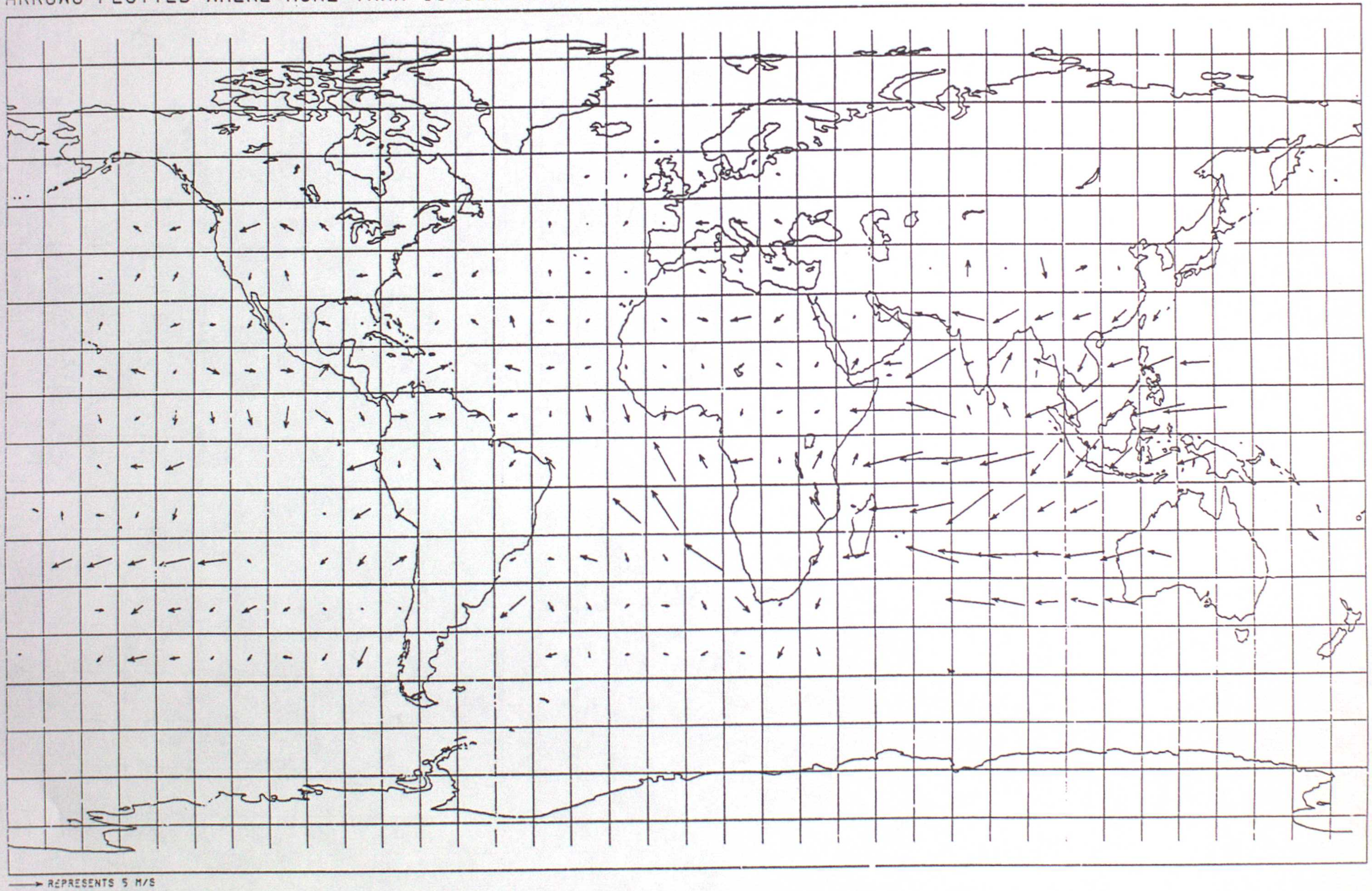
FIGURE 16

SATOB VECTOR MEAN WINDS BETWEEN 401-700 HPA
AUGUST 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

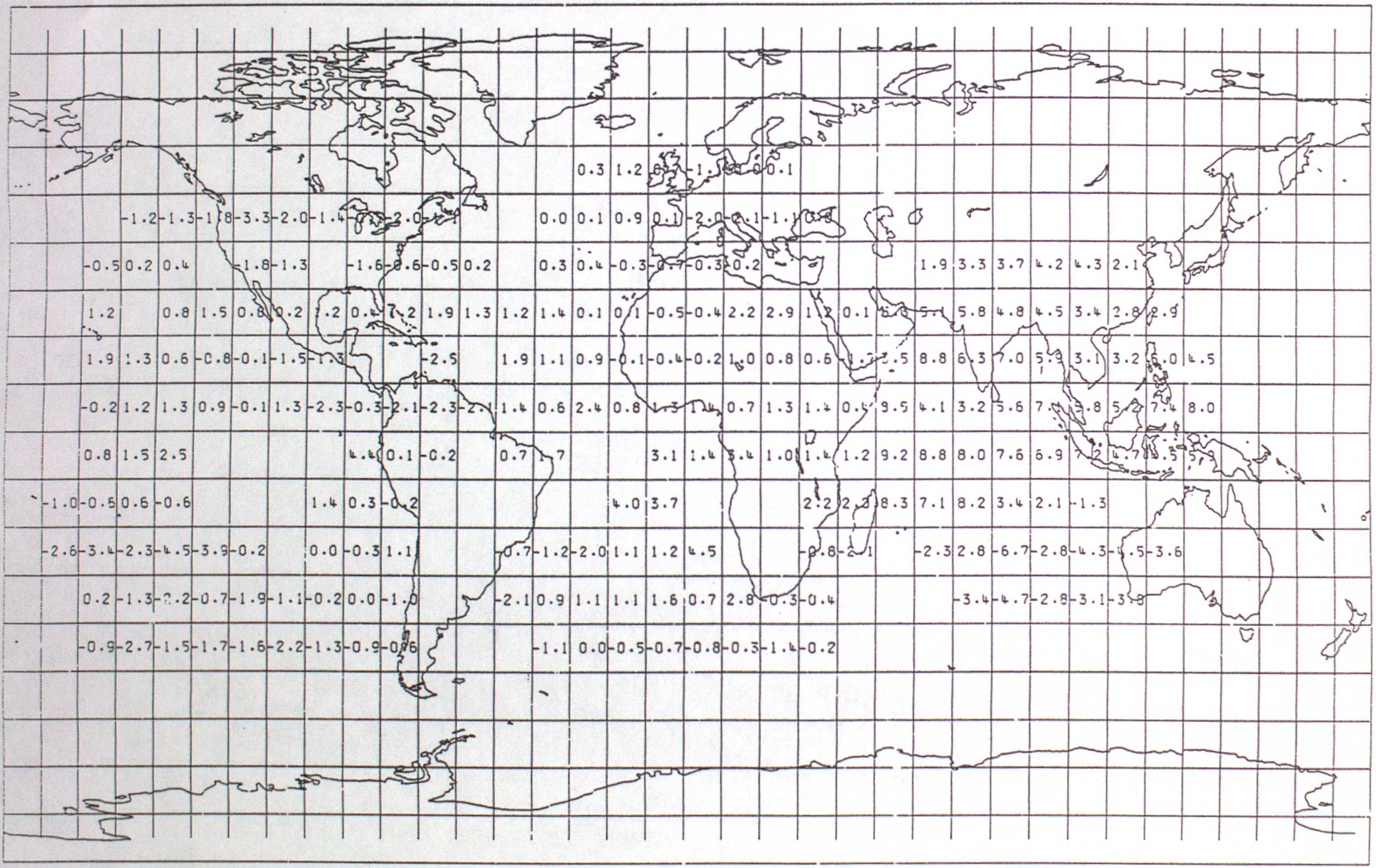

REPRESENTS 10 M/S

SATOB C-B VECTOR WIND DIFFERENCES BETWEEN 401-700 HPA
AUGUST 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

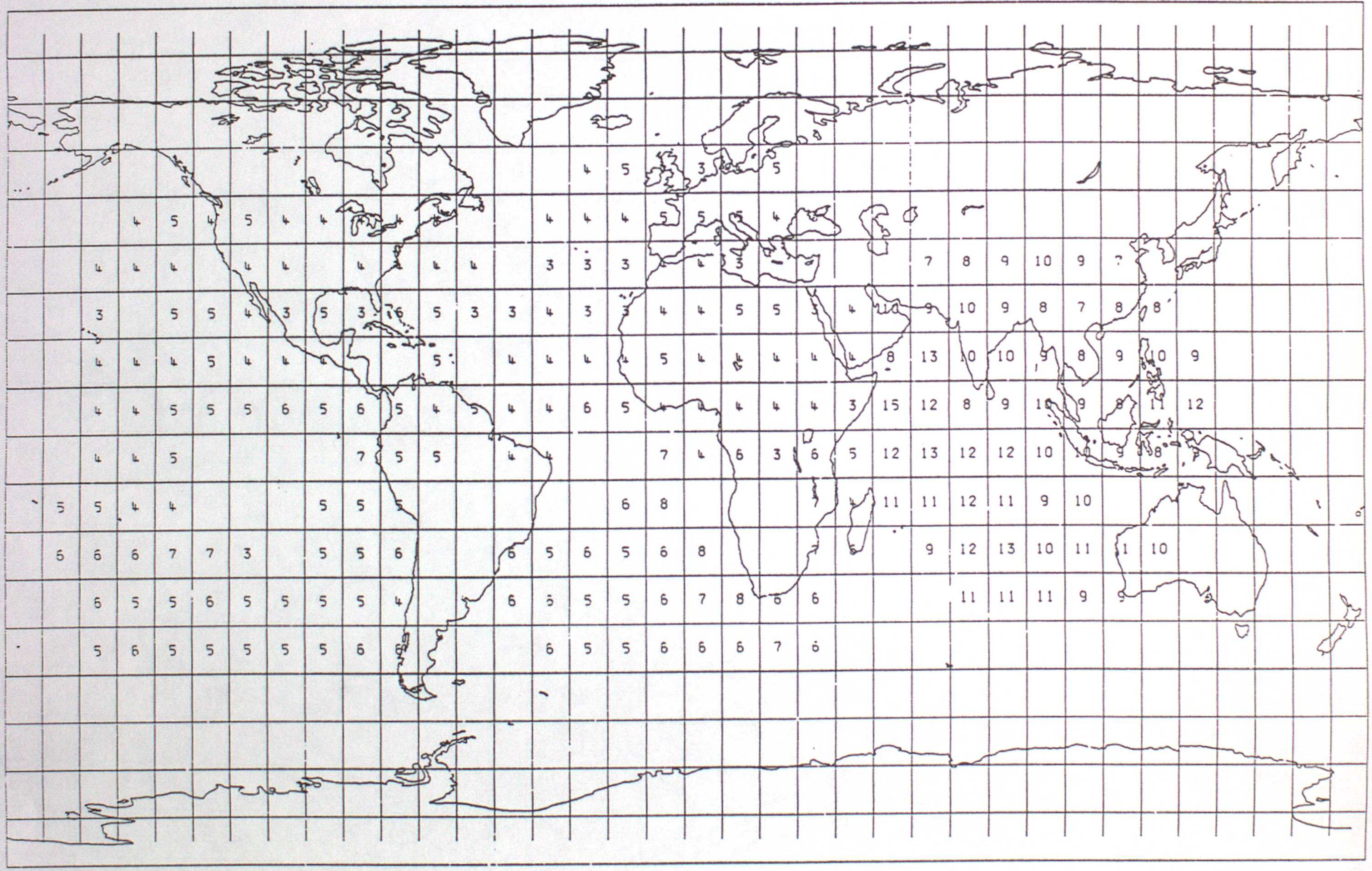
FIGURE 17



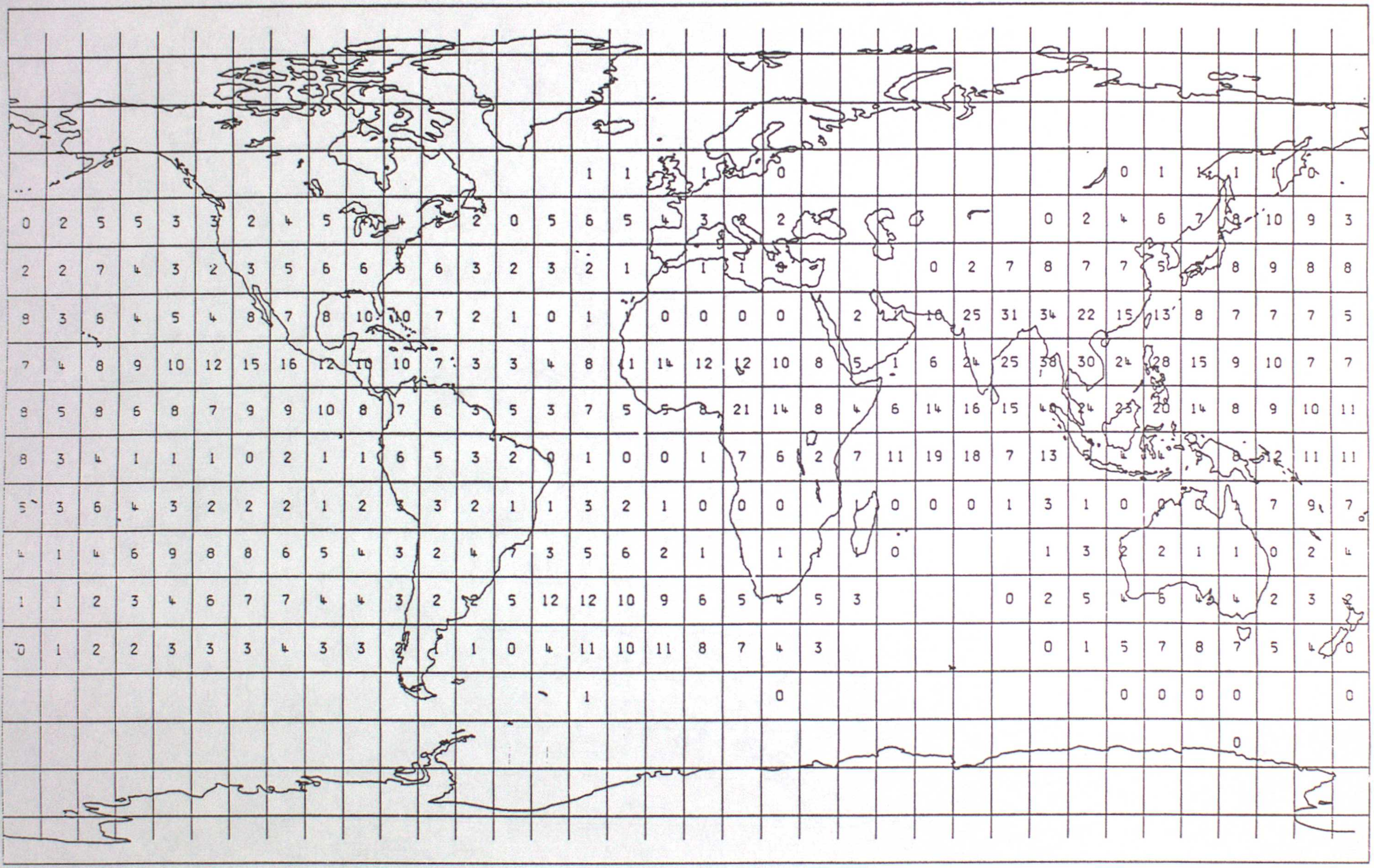
SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
AUGUST 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


0.3 1.2 -1.1 0.1
-1.2 -1.3 -3.3 -2.0 -1.4 -2.0 0.0 0.1 0.9 0.1 -2.0 -2.1 -1.1
-0.5 0.2 0.4 -1.8 -1.3 -1.6 -0.6 -0.5 0.2 0.3 0.4 -0.3 -0.7 -0.3 0.2 1.9 3.3 3.7 4.2 4.3 2.1
1.2 0.8 1.5 0.8 0.2 1.2 0.4 1.2 1.9 1.3 1.2 1.4 0.1 0.1 -0.5 -0.4 2.2 2.9 1.2 0.1 5.1 5.8 4.8 4.5 3.4 2.8 2.9
1.9 1.3 0.6 -0.8 -0.1 -1.5 -1.3 -2.5 1.9 1.1 0.9 -0.1 -0.4 -0.2 1.0 0.8 0.6 -1.7 8.8 6.3 7.0 5.9 3.1 3.2 6.0 4.5
-0.2 1.2 1.3 0.9 -0.1 1.3 -2.3 -0.3 -2.1 -2.3 -2.1 1.4 0.6 2.4 0.8 1.3 1.4 0.7 1.3 1.4 0.5 9.5 4.1 3.2 5.6 7.4 5.8 5.2 7.4 8.0
0.8 1.5 2.5 4.4 0.1 -0.2 0.7 1.7 3.1 1.4 5.4 1.0 1.4 1.2 9.2 8.8 8.0 7.6 6.9 7.2 4.7 5.5 5.9
-1.0 -0.5 0.6 -0.6 1.4 0.3 -0.2 4.0 3.7 2.2 2.3 8.3 7.1 8.2 3.4 2.1 -1.3
-2.6 -3.4 -2.3 -4.5 -3.9 -0.2 0.0 -0.3 1.1 -0.7 -1.2 -2.0 1.1 1.2 4.5 -0.8 -2.1 -2.3 2.8 -6.7 -2.8 -4.3 -4.5 -3.6
0.2 -1.3 -2.2 -0.7 -1.9 -1.1 -0.2 0.0 -1.0 -2.1 0.9 1.1 1.1 1.6 0.7 2.8 -0.3 -0.4 -3.4 -4.7 -2.8 -3.1 -3.8
-0.9 -2.7 -1.5 -1.7 -1.6 -2.2 -1.3 -0.9 -0.6 -1.1 0.0 -0.5 -0.7 -0.8 -0.3 -1.4 -0.2

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
AUGUST 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


4 5 3 5
4 5 4 5 4 4 4 4 4 4 5 5 5 4
4 4 4 4 4 4 4 4 3 3 3 4 3 7 8 9 10 9 7
3 5 5 4 3 5 3 6 5 3 3 4 3 3 4 4 5 5 3 4 10 9 10 9 8 7 8 8
4 4 4 5 4 4 4 5 4 4 4 4 5 4 4 4 4 4 8 13 10 10 9 8 9 10 9
4 4 5 5 5 6 5 6 5 4 5 4 4 6 5 4 4 4 4 4 3 15 12 8 9 10 9 8 11 12
4 4 5 7 5 5 4 4 7 4 6 3 6 5 12 13 12 12 10 10 9 8
5 5 4 4 5 5 5 6 8 7 4 11 11 12 11 9 10
6 6 6 7 7 3 5 5 6 6 5 6 5 6 8 7 6 9 12 13 10 11 11 10
6 5 5 6 5 5 5 5 4 6 6 5 5 6 7 8 6 6 11 11 11 9 9
5 6 5 5 5 5 5 6 6 6 5 5 6 6 6 7 6

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
AUGUST 1994


1 1 1 1 0 0 1 1 1 1 0
0 2 5 5 3 3 2 4 5 4 2 0 5 6 5 4 3 8 2 0 2 4 6 7 8 10 9 3
2 2 7 4 3 2 3 5 6 6 6 6 3 2 3 2 1 3 1 1 9 0 2 7 8 7 7 5 8 9 8 8
8 3 6 4 5 4 8 7 8 10 10 7 2 1 0 1 1 0 0 0 0 1 2 10 25 31 34 22 15 13 8 7 7 7 5
7 4 8 9 10 12 15 16 12 10 10 7 3 3 4 8 11 14 12 12 10 8 5 1 6 24 25 38 30 24 28 15 9 10 7 7
8 5 8 6 8 7 9 9 10 8 7 6 5 5 3 7 5 5 8 21 14 8 4 6 14 16 15 40 24 23 20 14 8 9 10 11
8 3 4 1 1 1 0 2 1 1 6 5 3 2 0 1 0 0 1 7 6 2 7 11 19 18 7 13 4 14 8 12 11 11
5 3 6 4 3 2 2 2 1 2 3 3 2 1 1 3 2 1 0 0 0 1 0 0 0 1 3 1 0 0 0 1 7 9 7
4 1 4 6 9 8 8 6 5 4 3 2 4 7 3 5 6 2 1 1 1 1 1 0 1 3 2 2 1 1 0 2 4
1 1 2 3 4 6 7 7 4 4 3 2 2 5 12 12 10 9 6 5 4 5 3 0 2 5 4 5 4 4 2 3 2
0 1 2 2 3 3 3 4 3 3 2 1 1 0 4 11 10 11 8 7 4 3 0 1 5 7 8 7 5 4 0
1 0 0 0 0 0 0
0

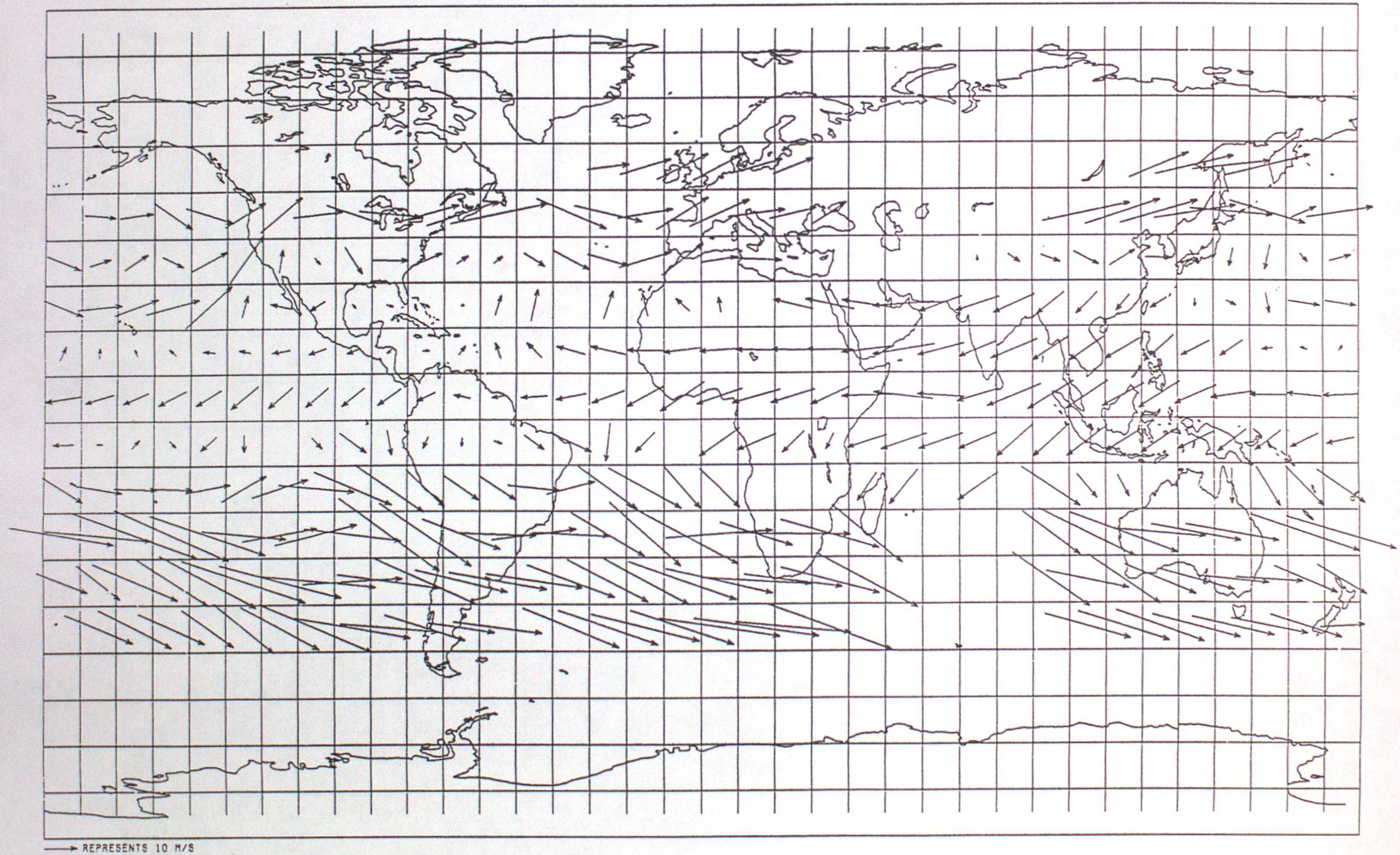
SATOB VECTOR MEAN WINDS BETWEEN 101-400 HPA

AUGUST 1994

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21


REPRESENTS 10 M/S

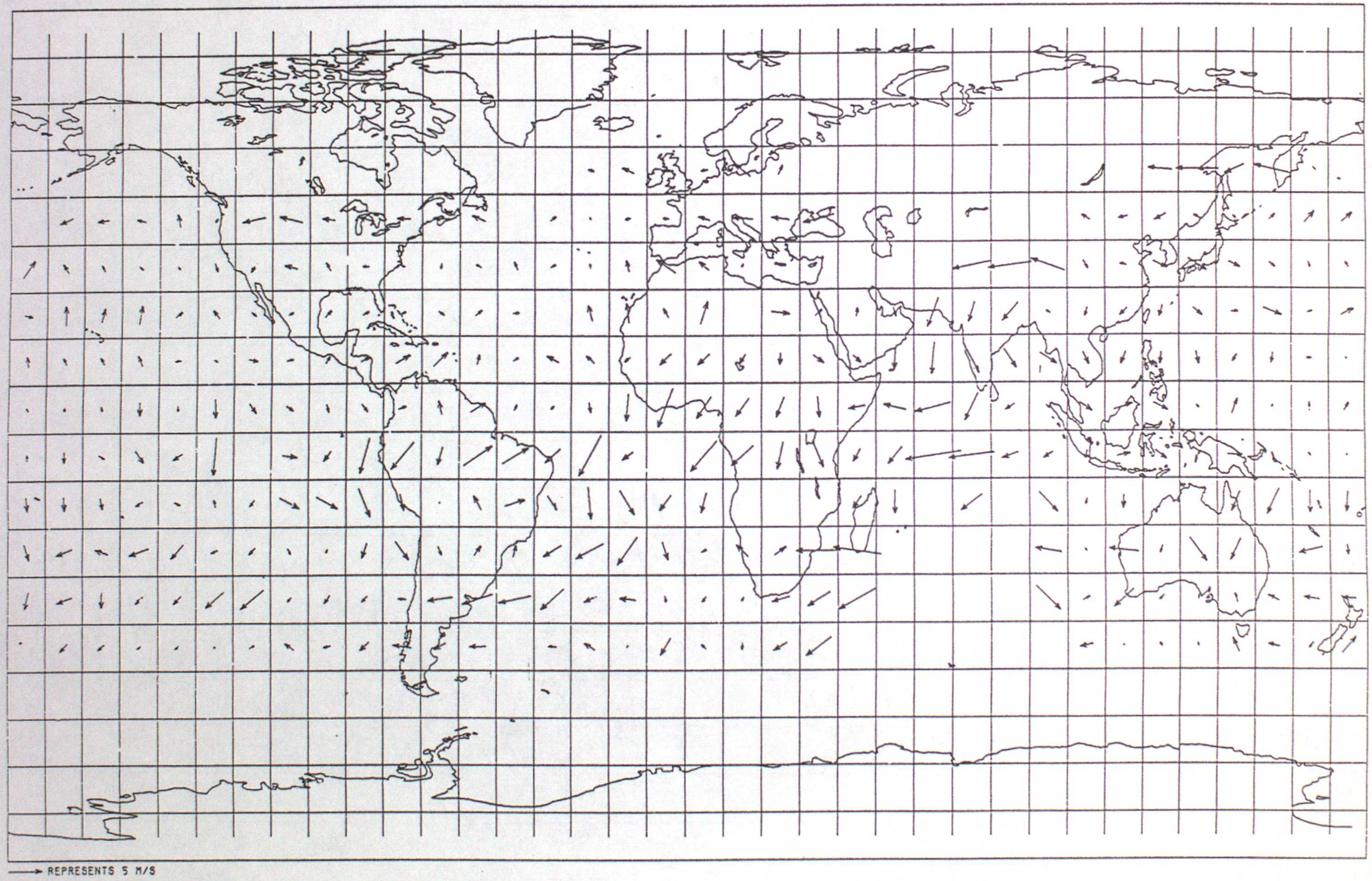
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPA

FIGURE 22

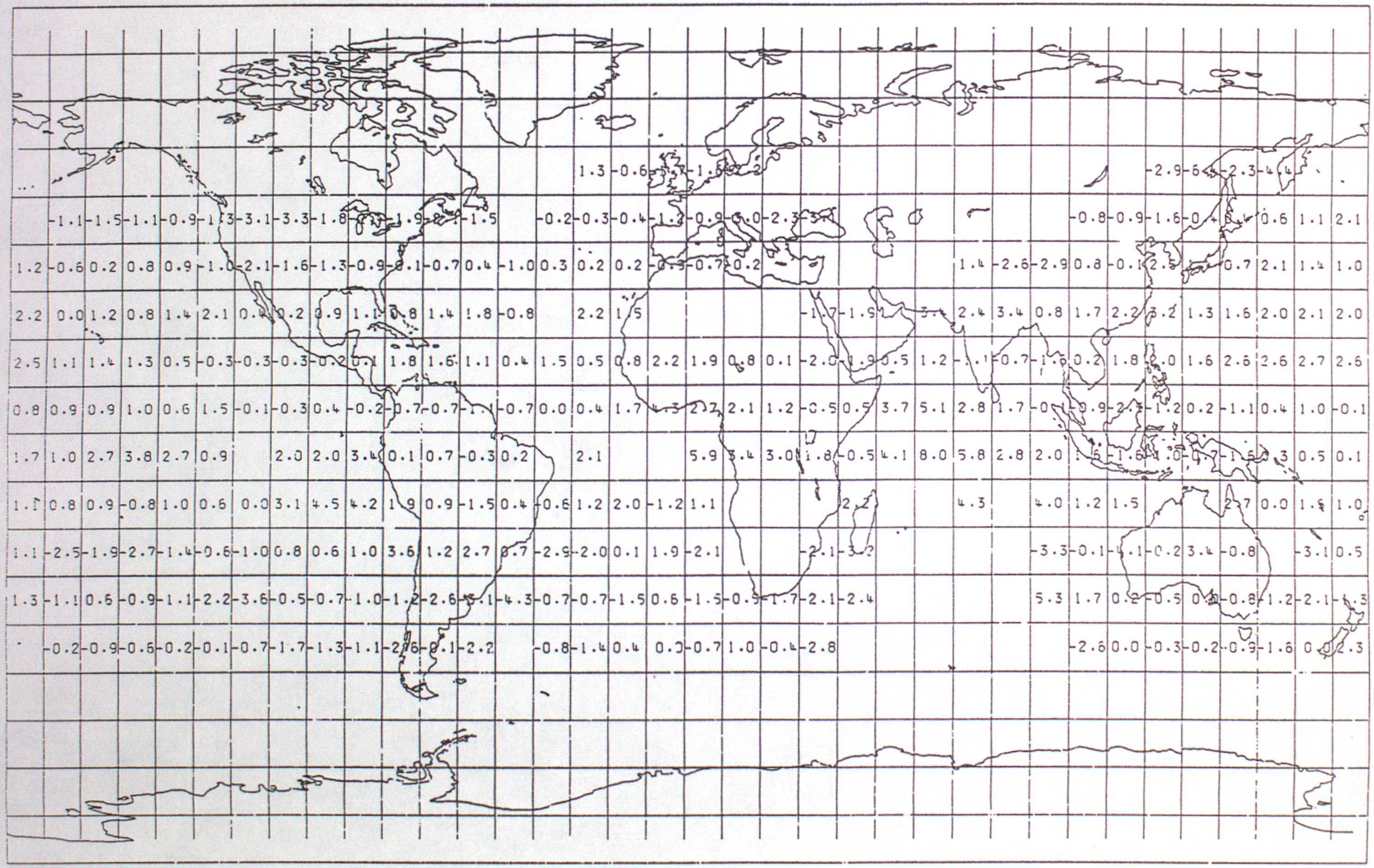
AUGUST 1994

ALL OBSERVATIONS

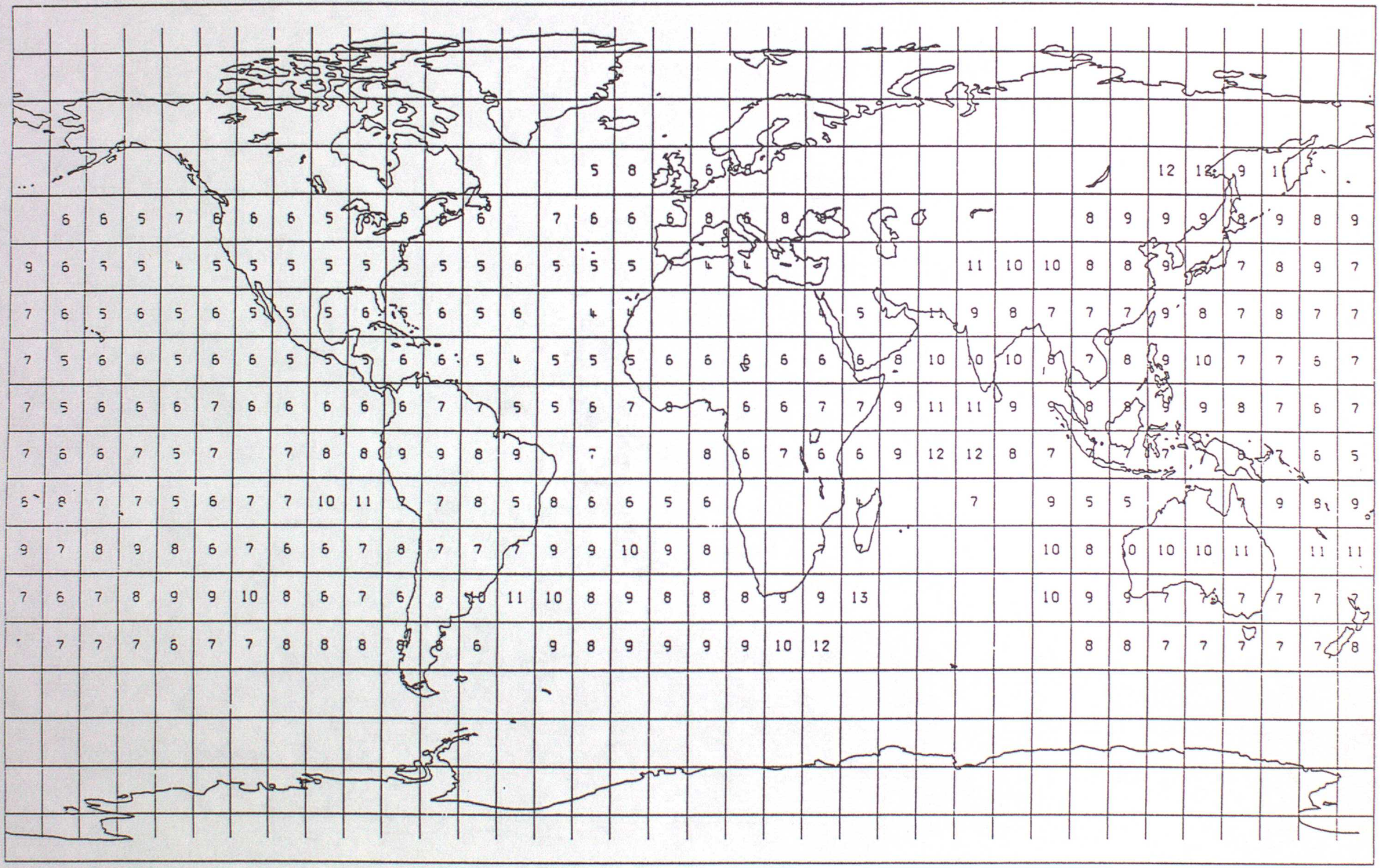
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
AUGUST 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


1.3 -0.6 -1.6 -2.9 -6.4 -2.3 -4.4
-1.1 -1.5 -1.1 -0.9 -1.3 -3.1 -3.3 -1.8 -1.9 -1.5 -0.2 -0.3 -0.4 -1.2 -0.9 -5.0 -2.3 -0.8 -0.9 -1.6 -0.4 0.6 1.1 2.1
1.2 -0.6 0.2 0.8 0.9 -1.0 -2.1 -1.6 -1.3 -0.9 -0.1 -0.7 0.4 -1.0 0.3 0.2 0.2 -0.3 -0.7 0.2 1.4 -2.6 -2.9 0.8 -0.1 2.5 -0.7 2.1 1.4 1.0
2.2 0.0 1.2 0.8 1.4 2.1 0.4 0.2 0.9 1.1 0.8 1.4 1.8 -0.8 2.2 1.5 -1.7 -1.5 3.4 2.4 3.4 0.8 1.7 2.2 3.2 1.3 1.6 2.0 2.1 2.0
2.5 1.1 1.4 1.3 0.5 -0.3 -0.3 -0.3 -0.2 0.1 1.8 1.6 1.1 0.4 1.5 0.5 0.8 2.2 1.9 0.8 0.1 -2.0 -1.9 0.5 1.2 -1.1 -0.7 -1.6 0.2 1.8 2.0 1.6 2.6 2.6 2.7 2.6
0.8 0.9 0.9 1.0 0.6 1.5 -0.1 -0.3 0.4 -0.2 -0.7 -0.7 -1.1 -0.7 0.0 0.4 1.7 4.3 2.7 2.1 1.2 -0.5 0.5 3.7 5.1 2.8 1.7 -0.1 -0.9 -2.3 -1.2 0.2 -1.1 0.4 1.0 -0.1
1.7 1.0 2.7 3.8 2.7 0.9 2.0 2.0 3.4 0.1 0.7 -0.3 0.2 2.1 5.9 3.4 3.0 1.8 -0.5 4.1 8.0 5.8 2.8 2.0 1.5 -1.6 -1.0 -0.7 -1.5 0.3 0.5 0.1
1.1 0.8 0.9 -0.8 1.0 0.6 0.0 3.1 4.5 4.2 1.9 0.9 -1.5 0.4 -0.6 1.2 2.0 -1.2 1.1 2.2 4.3 4.0 1.2 1.5 2.7 0.0 1.6 1.0
1.1 -2.5 -1.9 -2.7 -1.4 -0.6 -1.0 0.8 0.6 1.0 3.6 1.2 2.7 0.7 -2.9 -2.0 0.1 1.9 -2.1 -2.1 -3.2 -3.3 -0.1 -4.1 -0.2 3.4 -0.8 -3.1 0.5
1.3 -1.1 0.6 -0.9 -1.1 -2.2 -3.6 -0.5 -0.7 -1.0 -1.2 -2.6 -5.1 -4.3 -0.7 -0.7 -1.5 0.6 -1.5 -0.5 -1.7 -2.1 -2.4 5.3 1.7 0.2 -0.5 0.0 -0.8 -1.2 -2.1 -1.3
-0.2 -0.9 -0.6 -0.2 -0.1 -0.7 -1.7 -1.3 -1.1 -2.6 -0.1 -2.2 -0.8 -1.4 0.4 0.0 -0.7 1.0 -0.4 -2.8 -2.6 0.0 -0.3 -0.2 -0.9 -1.6 0.0 2.3

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
AUGUST 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH:August, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-11, NOAA-12 500 km.

Standard of comparison :Background field from Bracknell global model.

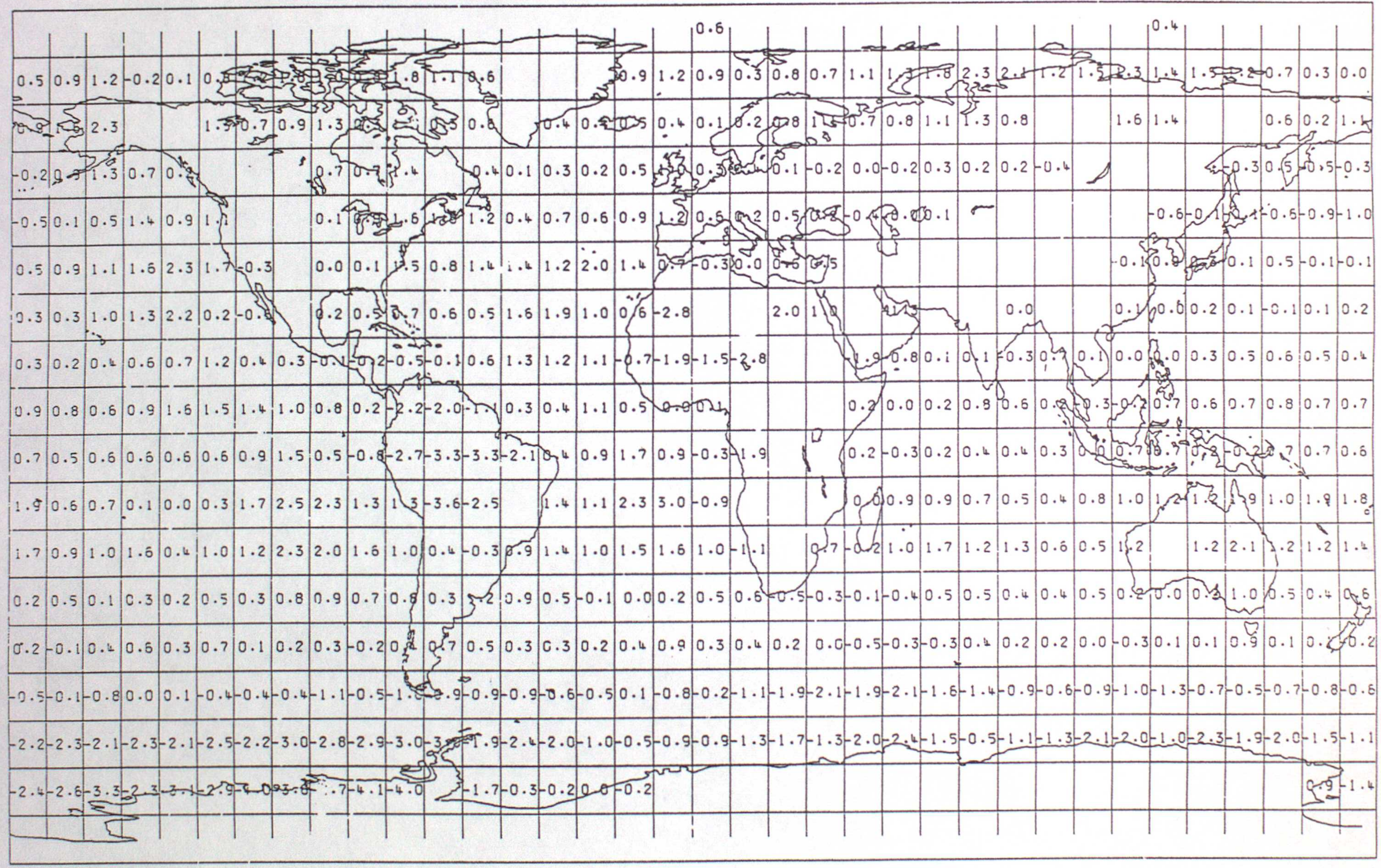
Selection Criteria :All SATEM soundings where number of observations > 30.

Data Extracted :Layer:850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

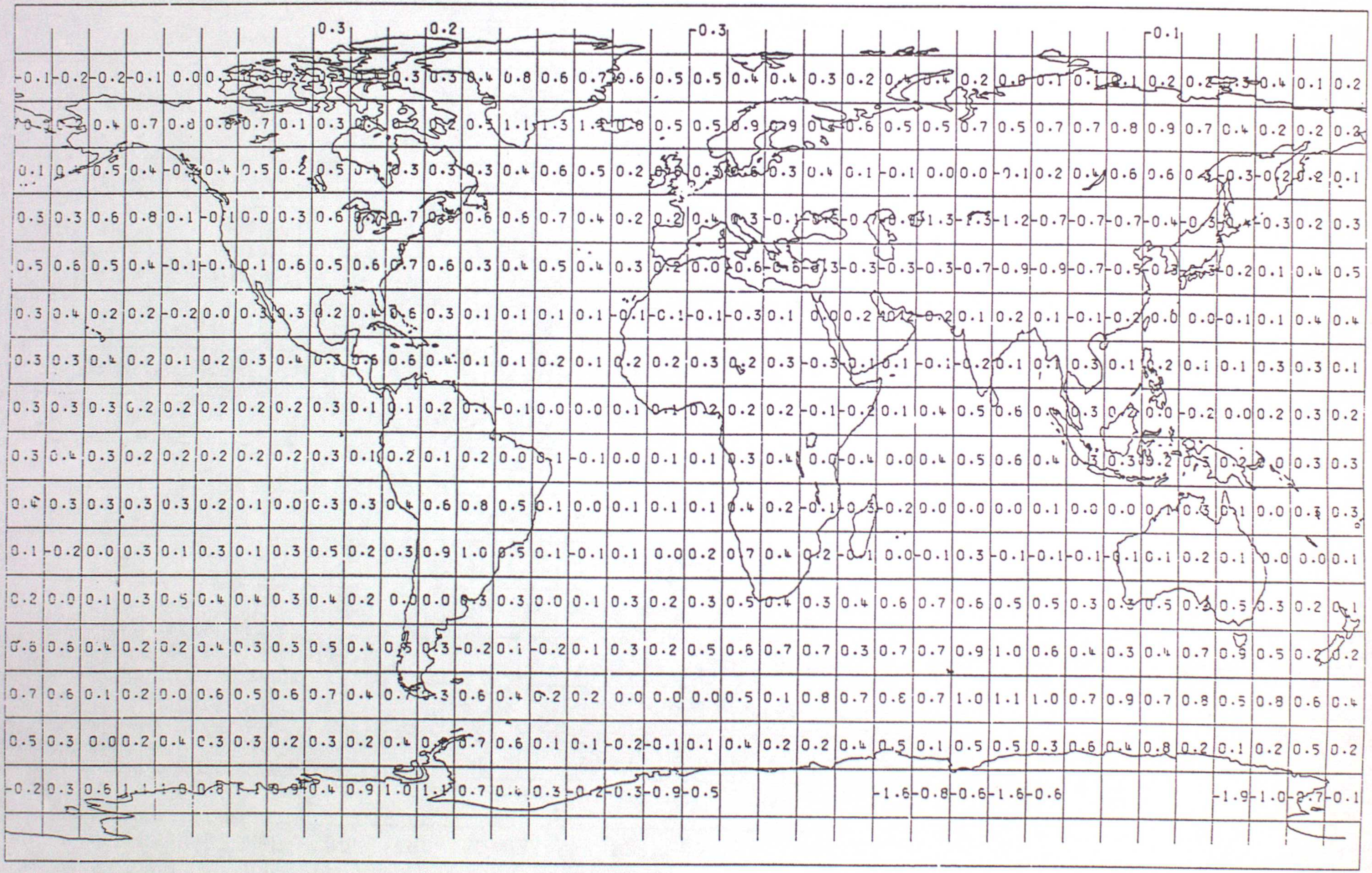
:Mean observation minus background temperature differences

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
AUGUST 1994
NOAA-11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 25


0.6 0.4
0.5 0.9 1.2 -0.2 0.1 1.8 1.1 0.6 0.9 1.2 0.9 0.3 0.8 0.7 1.1 1.8 2.3 1.2 1.5 1.4 -0.7 0.3 0.0
2.3 1.3 0.7 0.9 1.3 0.8 0.4 0.5 0.4 0.1 0.2 0.8 0.7 0.8 1.1 1.3 0.8 1.6 1.4 0.6 0.2
-0.2 1.3 0.7 0.7 0.4 0.1 0.3 0.2 0.5 -0.1 -0.2 0.0 -0.2 0.3 0.2 0.2 -0.4 -0.3 0.5 -0.3
-0.5 0.1 0.5 1.4 0.9 0.1 1.6 1.2 0.4 0.7 0.6 0.9 1.2 0.5 0.2 0.5 -0.4 0.1 -0.6 -0.6 -0.9 -1.0
0.5 0.9 1.1 1.6 2.3 1.7 -0.3 0.0 0.1 1.5 0.8 1.4 1.4 1.2 2.0 1.4 0.7 -0.3 0.0 0.5 -0.1 0.1 0.5 -0.1 -0.1
0.3 0.3 1.0 1.3 2.2 0.2 -0.6 0.2 0.5 0.7 0.6 0.5 1.6 1.9 1.0 0.6 -2.8 2.0 1.0 0.0 0.1 0.0 0.2 0.1 -0.1 0.1 0.2
0.3 0.2 0.4 0.6 0.7 1.2 0.4 0.3 -0.1 -0.2 -0.5 -0.1 0.6 1.3 1.2 1.1 -0.7 -1.9 -1.5 -2.8 -1.9 -0.8 0.1 0.1 -0.3 0.1 0.0 0.0 0.3 0.5 0.6 0.5 0.4
0.9 0.8 0.6 0.9 1.6 1.5 1.4 1.0 0.8 0.2 -2.2 -2.0 -1.1 0.3 0.4 1.1 0.5 0.2 0.0 0.2 0.8 0.6 -0.3 -0.2 0.7 0.6 0.7 0.8 0.7 0.7
0.7 0.5 0.6 0.6 0.6 0.6 0.9 1.5 0.5 -0.8 -2.7 -3.3 -3.3 -2.1 0.4 0.9 1.7 0.9 -0.3 -1.9 0.2 -0.3 0.2 0.4 0.4 0.3 0.0 0.7 0.7 0.7 0.7 0.6
1.9 0.6 0.7 0.1 0.0 0.3 1.7 2.5 2.3 1.3 1.3 -3.6 -2.5 1.4 1.1 2.3 3.0 -0.9 0.0 0.9 0.9 0.7 0.5 0.4 0.8 1.0 1.2 1.2 1.9 1.0 1.9 1.8
1.7 0.9 1.0 1.6 0.4 1.0 1.2 2.3 2.0 1.6 1.0 0.4 -0.3 0.9 1.4 1.0 1.5 1.6 1.0 -1.1 0.7 -0.2 1.0 1.7 1.2 1.3 0.6 0.5 1.2 1.2 2.1 1.2 1.2 1.4
0.2 0.5 0.1 0.3 0.2 0.5 0.3 0.8 0.9 0.7 0.8 0.3 0.2 0.9 0.5 -0.1 0.0 0.2 0.5 0.6 -0.5 -0.3 -0.1 -0.4 0.5 0.5 0.4 0.4 0.5 0.2 0.0 0.3 1.0 0.5 0.4 0.6
0.2 -0.1 0.4 0.6 0.3 0.7 0.1 0.2 0.3 -0.2 0.7 0.5 0.3 0.3 0.2 0.4 0.9 0.3 0.4 0.2 0.0 -0.5 -0.3 -0.3 0.4 0.2 0.2 0.0 -0.3 0.1 0.1 0.9 0.1 -0.2
-0.5 -0.1 -0.8 0.0 0.1 -0.4 -0.4 -0.4 -1.1 -0.5 -1.0 -0.9 -0.9 -0.9 -0.6 -0.5 0.1 -0.8 -0.2 -1.1 -1.9 -2.1 -1.9 -2.1 -1.6 -1.4 -0.9 -0.6 -0.9 -1.0 -1.3 -0.7 -0.5 -0.7 -0.8 -0.6
-2.2 -2.3 -2.1 -2.3 -2.1 -2.5 -2.2 -3.0 -2.8 -2.9 -3.0 -3.3 -1.9 -2.4 -2.0 -1.0 -0.5 -0.9 -0.9 -1.3 -1.7 -1.3 -2.0 -2.4 -1.5 -0.5 -1.1 -1.3 -2.1 -2.0 -1.0 -2.3 -1.9 -2.0 -1.5 -1.1
-2.4 -2.6 -3.3 -2.3 -3.1 -2.9 -4.0 -3.8 -3.7 -4.1 -4.0 -1.7 -0.3 -0.2 0.0 -0.2 0.9 -1.4

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
AUGUST 1994 FIGURE 26
NOAA-11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


0.3 0.2 -0.3 -0.1
-0.1 -0.2 -0.2 -0.1 0.0 0.0 0.3 0.3 0.4 0.8 0.6 0.7 0.6 0.5 0.5 0.4 0.4 0.3 0.2 0.4 0.4 0.2 0.0 0.1 0.1 0.1 0.2 0.2 0.3 0.4 0.1 0.2
0.4 0.7 0.8 0.8 0.7 0.1 0.3 0.2 0.5 1.1 1.3 1.3 0.8 0.5 0.5 0.9 0.9 0.6 0.5 0.5 0.7 0.5 0.7 0.7 0.8 0.9 0.7 0.4 0.2 0.2 0.2
0.1 0.5 0.4 0.4 0.5 0.2 0.5 0.3 0.3 0.3 0.4 0.6 0.5 0.2 0.3 0.3 0.4 0.1 -0.1 0.0 0.0 -0.1 0.2 0.4 0.6 0.6 -0.3 -0.2 0.2 0.1
0.3 0.3 0.6 0.8 0.1 -0.1 0.0 0.3 0.6 0.7 0.6 0.6 0.7 0.4 0.2 0.2 0.4 0.3 1.3 1.3 -1.2 -0.7 -0.7 -0.7 -0.4 -0.3 -0.3 0.2 0.3
0.5 0.6 0.5 0.4 -0.1 -0.1 0.1 0.6 0.5 0.6 0.7 0.6 0.3 0.4 0.5 0.4 0.3 0.2 0.0 0.6 -0.3 -0.3 -0.3 -0.7 -0.9 -0.9 -0.7 -0.5 -0.2 0.1 0.4 0.5
0.3 0.4 0.2 0.2 -0.2 0.0 0.3 0.3 0.2 0.4 0.6 0.3 0.1 0.1 0.1 0.1 -0.1 -0.1 -0.1 -0.3 0.1 0.0 0.2 -0.2 0.1 0.2 0.1 -0.1 -0.2 0.0 0.0 -0.1 0.1 0.4 0.4
0.3 0.3 0.4 0.2 0.1 0.2 0.3 0.4 0.3 0.6 0.6 0.4 0.1 0.1 0.2 0.1 0.2 0.2 0.3 0.2 0.3 -0.3 0.1 -0.1 -0.2 0.1 0.1 0.3 0.1 0.2 0.1 0.1 0.3 0.3 0.1
0.3 0.3 0.3 0.2 0.2 0.2 0.2 0.2 0.3 0.1 0.1 0.2 -0.1 0.0 0.0 0.1 0.2 0.2 0.2 -0.1 -0.2 0.1 0.4 0.5 0.6 0.3 0.0 -0.2 0.0 0.2 0.3 0.2
0.3 0.4 0.3 0.2 0.2 0.2 0.2 0.2 0.3 0.1 0.2 0.1 0.2 0.0 -0.1 -0.1 0.0 0.1 0.1 0.3 0.4 0.0 -0.4 0.0 0.4 0.5 0.6 0.4 0.3 0.3 0.2 0.2 0.0 0.3 0.3
0.4 0.3 0.3 0.3 0.3 0.2 0.1 0.0 0.3 0.3 0.4 0.6 0.8 0.5 0.1 0.0 0.1 0.1 0.1 0.4 0.2 -0.1 -0.3 -0.2 0.0 0.0 0.0 0.1 0.0 0.0 0.1 0.3 0.1 0.0 0.3 0.3
0.1 -0.2 0.0 0.3 0.1 0.3 0.1 0.3 0.5 0.2 0.3 0.9 1.0 0.5 0.1 -0.1 0.1 0.0 0.2 0.7 0.4 0.2 -0.1 0.0 -0.1 0.3 -0.1 -0.1 -0.1 -0.1 0.1 0.2 0.1 0.0 0.0 0.1
0.2 0.0 0.1 0.3 0.5 0.4 0.4 0.3 0.4 0.2 0.0 0.0 0.3 0.3 0.0 0.1 0.3 0.2 0.3 0.5 0.4 0.3 0.4 0.6 0.7 0.6 0.5 0.5 0.3 0.3 0.5 0.3 0.5 0.3 0.2 0.1
0.6 0.6 0.4 0.2 0.2 0.4 0.3 0.3 0.5 0.4 0.5 0.3 -0.2 0.1 -0.2 0.1 0.3 0.2 0.5 0.6 0.7 0.7 0.3 0.7 0.7 0.9 1.0 0.6 0.4 0.3 0.4 0.7 0.9 0.5 0.2 0.2
0.7 0.6 0.1 0.2 0.0 0.6 0.5 0.6 0.7 0.4 0.7 0.3 0.6 0.4 0.2 0.2 0.0 0.0 0.0 0.5 0.1 0.8 0.7 0.8 0.7 1.0 1.1 1.0 0.7 0.9 0.7 0.8 0.5 0.8 0.6 0.4
0.5 0.3 0.0 0.2 0.4 0.3 0.3 0.2 0.3 0.2 0.4 0.9 0.7 0.6 0.1 0.1 -0.2 -0.1 0.1 0.4 0.2 0.2 0.4 0.5 0.1 0.5 0.5 0.3 0.6 0.4 0.8 0.2 0.1 0.2 0.5 0.2
-0.2 0.3 0.6 1.1 1.0 0.8 1.2 0.9 0.4 0.9 1.0 1.1 0.7 0.4 0.3 -0.2 -0.3 -0.9 -0.5 -1.6 -0.8 -0.6 -1.6 -0.6 -1.9 -1.0 -2.7 -0.1

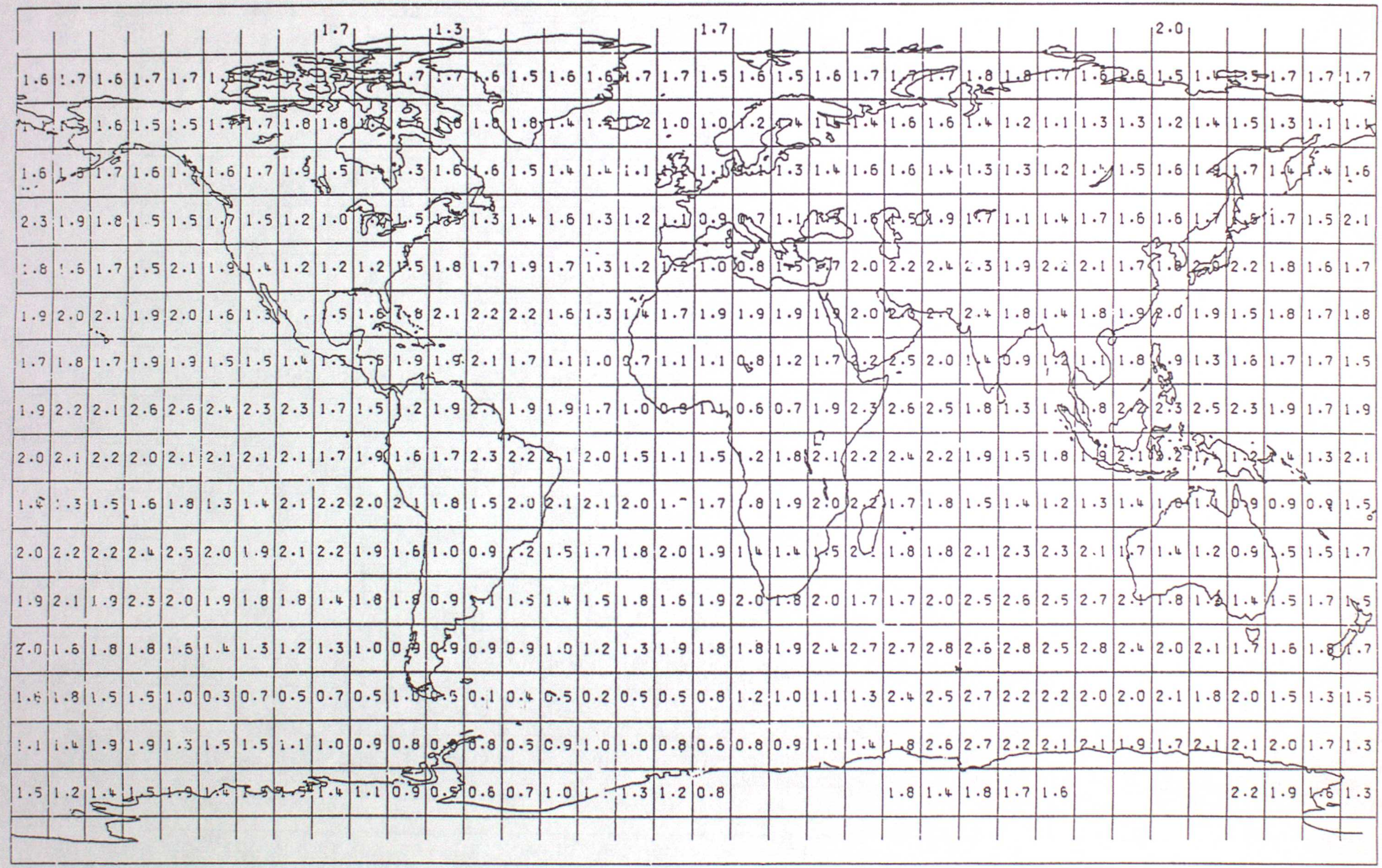
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA

FIGURE 27

AUGUST 1994

NOAA-11, USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


1.7 1.3 1.7 2.0
1.6 1.7 1.6 1.7 1.7 1.7 1.7 1.6 1.5 1.6 1.6 1.7 1.7 1.5 1.6 1.5 1.6 1.7 1.7 1.7 1.8 1.8 1.7 1.6 1.6 1.5 1.4 1.5 1.7 1.7 1.7
1.6 1.5 1.5 1.7 1.7 1.8 1.8 1.8 1.8 1.4 1.2 1.0 1.0 1.2 1.4 1.4 1.6 1.6 1.4 1.2 1.1 1.3 1.3 1.2 1.4 1.5 1.3 1.1 1.1
1.6 1.7 1.6 1.6 1.7 1.9 1.5 1.3 1.6 1.6 1.5 1.4 1.4 1.1 1.3 1.4 1.6 1.6 1.4 1.3 1.3 1.2 1.4 1.5 1.6 1.7 1.4 1.6
2.3 1.9 1.8 1.5 1.5 1.7 1.5 1.2 1.0 1.5 1.3 1.4 1.6 1.3 1.2 1.1 0.9 0.7 1.1 1.6 1.5 1.9 1.7 1.1 1.4 1.7 1.6 1.6 1.7 1.5 2.1
1.8 1.6 1.7 1.5 2.1 1.9 1.4 1.2 1.2 1.2 1.5 1.8 1.7 1.9 1.7 1.3 1.2 1.2 1.0 0.8 1.5 1.7 2.0 2.2 2.4 2.3 1.9 2.2 2.1 1.7 1.8 2.0 2.2 1.8 1.6 1.7
1.9 2.0 2.1 1.9 2.0 1.6 1.3 1.5 1.6 1.8 2.1 2.2 2.2 1.6 1.3 1.4 1.7 1.9 1.9 1.9 1.9 2.0 2.4 1.8 1.4 1.8 1.9 2.0 1.9 1.5 1.8 1.7 1.8
1.7 1.8 1.7 1.9 1.9 1.5 1.5 1.4 1.5 1.6 1.9 1.9 2.1 1.7 1.1 1.0 0.7 1.1 1.1 0.8 1.2 1.7 2.2 2.5 2.0 1.4 0.9 1.2 1.1 1.8 1.9 1.3 1.6 1.7 1.7 1.5
1.9 2.2 2.1 2.6 2.6 2.4 2.3 2.3 1.7 1.5 1.2 1.9 2.1 1.9 1.9 1.7 1.0 0.9 1.1 0.6 0.7 1.9 2.3 2.6 2.5 1.8 1.3 1.8 2.3 2.5 2.3 1.9 1.7 1.9
2.0 2.1 2.2 2.0 2.1 2.1 2.1 2.1 1.7 1.9 1.6 1.7 2.3 2.2 2.1 2.0 1.5 1.1 1.5 1.2 1.8 2.1 2.2 2.4 2.2 1.9 1.5 1.8 2.1 2.2 1.2 1.3 2.1
1.3 1.5 1.6 1.8 1.3 1.4 2.1 2.2 2.0 2.1 1.8 1.5 2.0 2.1 2.1 2.0 1.7 1.8 1.9 2.0 2.2 1.7 1.8 1.5 1.4 1.2 1.3 1.4 0.9 0.9 0.9 1.5
2.0 2.2 2.2 2.4 2.5 2.0 1.9 2.1 2.2 1.9 1.6 1.0 0.9 1.2 1.5 1.7 1.8 2.0 1.9 1.4 1.4 1.5 1.8 1.8 2.1 2.3 2.3 2.1 1.7 1.4 1.2 0.9 1.5 1.5 1.7
1.9 2.1 1.9 2.3 2.0 1.9 1.8 1.8 1.4 1.8 1.8 0.9 1.5 1.4 1.5 1.8 1.6 1.9 2.0 1.8 2.0 1.7 1.7 2.0 2.5 2.6 2.5 2.7 1.8 1.4 1.5 1.7 1.5
2.0 1.6 1.8 1.8 1.6 1.4 1.3 1.2 1.3 1.0 0.9 0.9 0.9 1.0 1.2 1.3 1.9 1.8 1.8 1.9 2.4 2.7 2.7 2.8 2.6 2.8 2.5 2.8 2.4 2.0 2.1 1.7 1.6 1.8 1.7
1.6 1.8 1.5 1.5 1.0 0.3 0.7 0.5 0.7 0.5 1.0 0.5 0.1 0.4 0.5 0.2 0.5 0.5 0.8 1.2 1.0 1.1 1.3 2.4 2.5 2.7 2.2 2.2 2.0 2.0 2.1 1.8 2.0 1.5 1.3 1.5
1.1 1.4 1.9 1.9 1.3 1.5 1.5 1.1 1.0 0.9 0.8 0.8 0.5 0.9 1.0 1.0 0.8 0.6 0.8 0.9 1.1 1.4 1.8 2.6 2.7 2.2 2.1 2.1 1.9 1.7 2.1 2.1 2.0 1.7 1.3
1.5 1.2 1.4 1.5 1.9 1.4 1.4 1.1 0.9 0.5 0.6 0.7 1.0 1.3 1.2 0.8 1.8 1.4 1.8 1.7 1.6 2.2 1.9 1.6 1.3

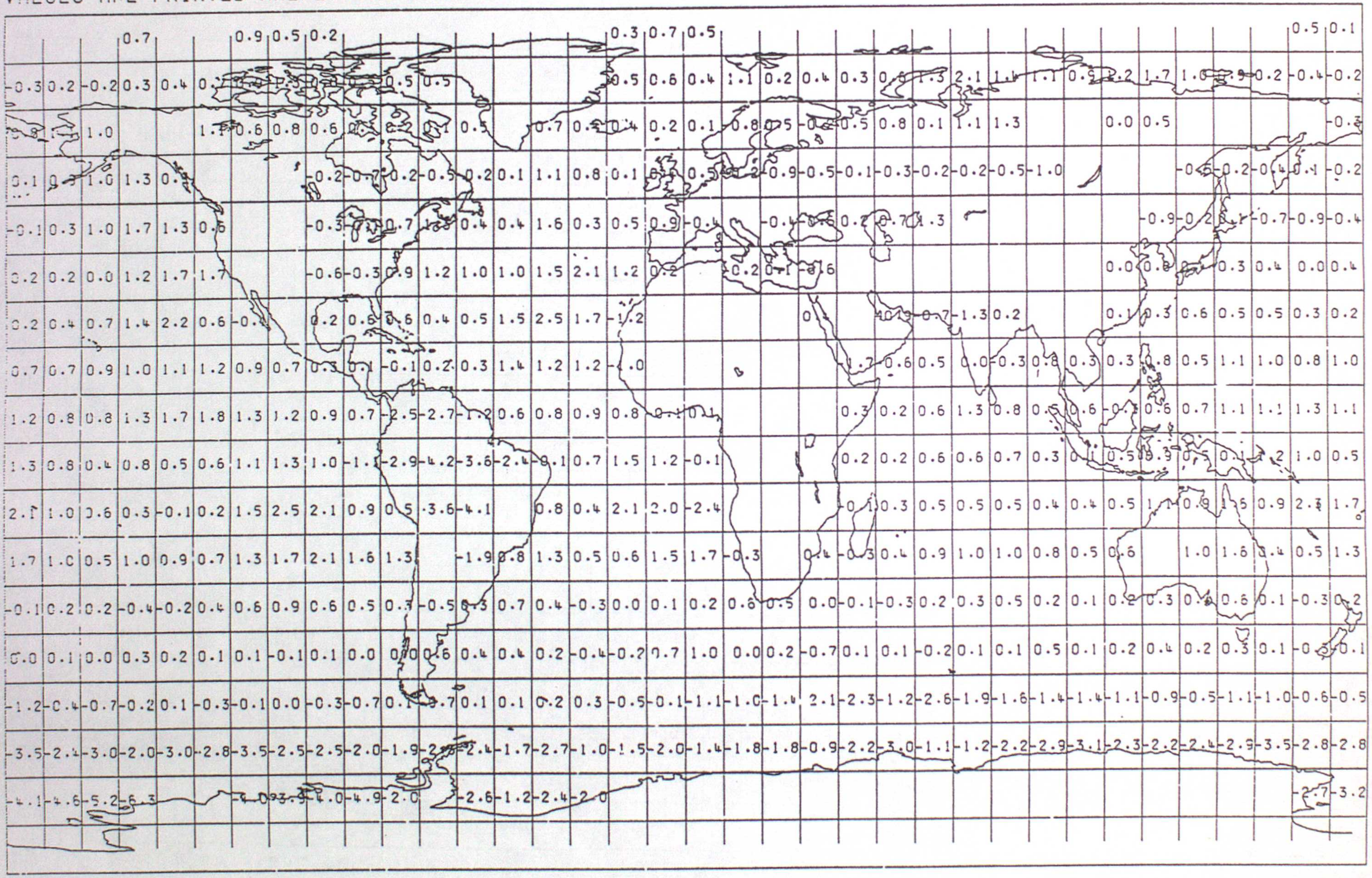
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA

FIGURE 28

AUGUST 1994

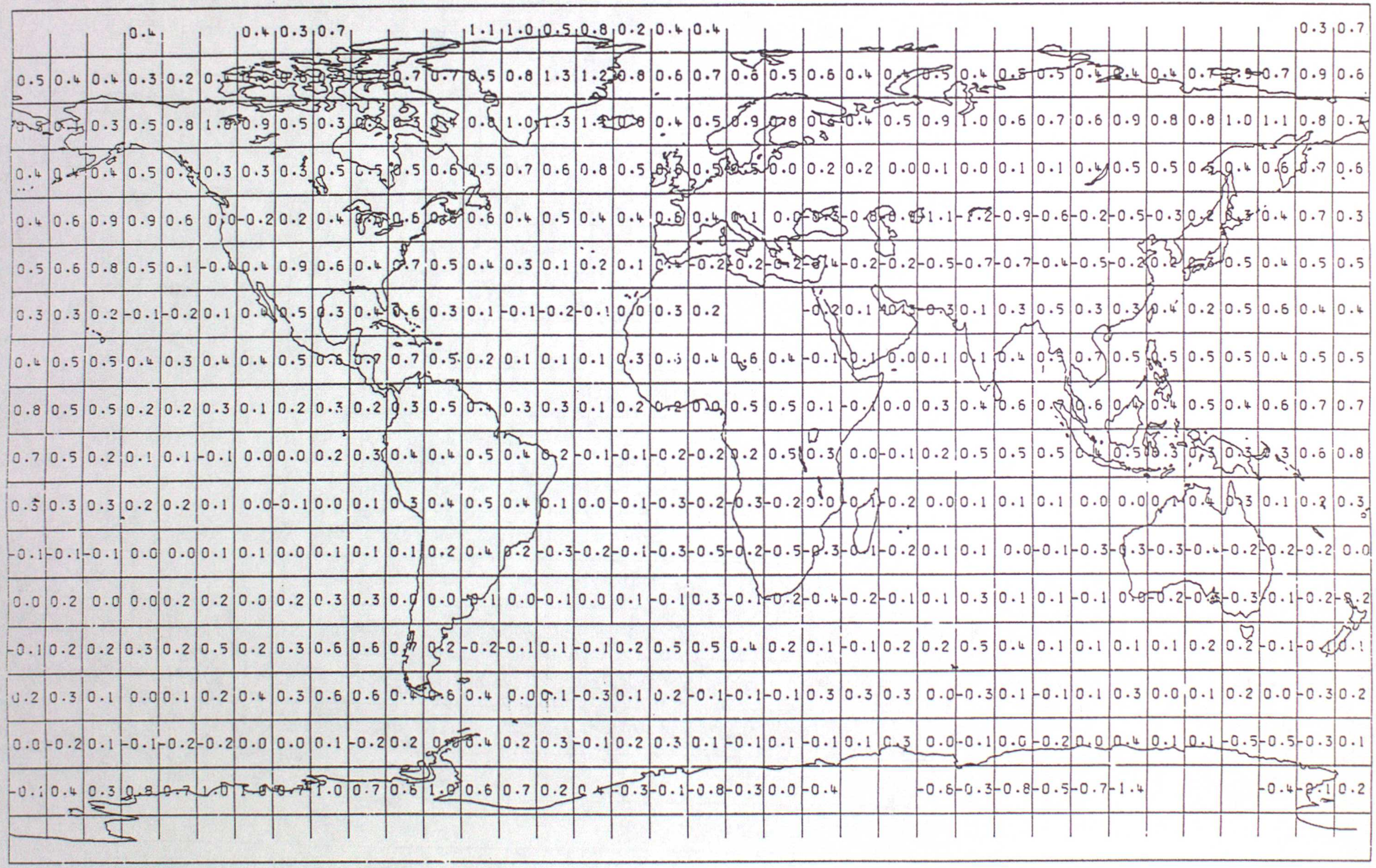
NOAA-12, USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

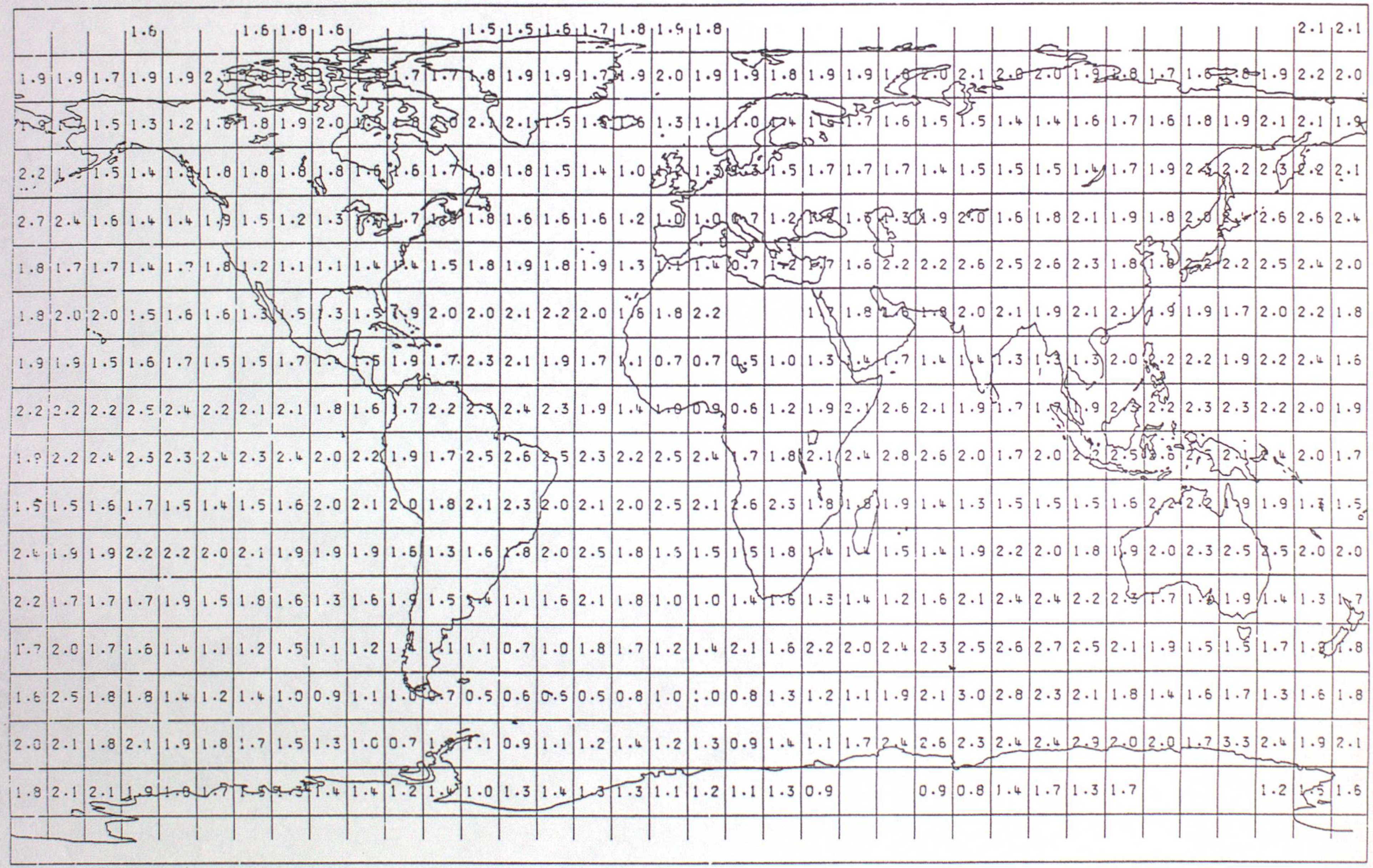

0.7 0.9 0.5 0.2 0.3 0.7 0.5 0.5 0.1
-0.3 0.2 -0.2 0.3 0.4 0.5 0.5 0.5 0.6 0.4 1.1 0.2 0.4 0.3 1.3 2.1 1.4 1.1 1.7 -0.2 -0.4 -0.2
1.0 0.6 0.8 0.6 0.5 0.7 0.2 0.1 0.5 0.8 0.1 1.1 1.3 0.0 0.5 -0.3
0.1 1.0 1.3 -0.2 0.2 -0.5 0.2 0.1 1.1 0.8 0.1 -0.9 -0.5 -0.1 -0.3 -0.2 -0.2 -0.5 -1.0 -0.2 -0.2
-0.1 0.3 1.0 1.7 1.3 -0.3 0.7 0.4 0.4 1.6 0.3 0.5 0.2 1.3 -0.9 -0.7 -0.9 -0.4
0.2 0.2 0.0 1.2 1.7 1.7 -0.6 -0.3 1.2 1.0 1.0 1.5 2.1 1.2 0.2 -0.6 0.0 0.3 0.4 0.0 0.4
0.2 0.4 0.7 1.4 2.2 0.6 0.2 0.6 0.6 0.4 0.5 1.5 2.5 1.7 1.2 0 -0.7 -1.3 0.2 0.1 0.3 0.6 0.5 0.5 0.3 0.2
0.7 0.7 0.9 1.0 1.1 1.2 0.9 0.7 -0.1 0.2 0.3 1.4 1.2 1.2 1.7 -0.6 0.5 -0.3 0.3 0.3 0.8 0.5 1.1 1.0 0.8 1.0
1.2 0.8 0.8 1.3 1.7 1.8 1.3 1.2 0.9 0.7 -2.5 -2.7 0.6 0.8 0.9 0.8 0.3 0.2 0.6 1.3 0.8 0.6 0.7 1.1 1.1 1.3 1.1
1.3 0.8 0.4 0.8 0.5 0.6 1.1 1.3 1.0 -2.9 -4.2 -3.6 -2.4 0.7 1.5 1.2 -0.1 0.2 0.2 0.6 0.6 0.7 0.3 0.5 1.0 0.5
2.1 1.0 0.6 0.3 -0.1 0.2 1.5 2.5 2.1 0.9 -3.6 -4.1 0.8 0.4 2.1 2.0 -2.4 0.3 0.5 0.5 0.5 0.4 0.4 0.5 0.9 1.7
1.7 1.0 0.5 1.0 0.9 0.7 1.3 1.7 2.1 1.6 1.3 -1.9 1.3 0.5 0.6 1.5 1.7 -0.3 0.4 0.9 1.0 1.0 0.8 0.5 0.6 1.0 1.6 0.5 1.3
-0.1 0.2 0.2 -0.4 -0.2 0.4 0.6 0.9 0.6 0.5 -0.5 0.7 0.4 -0.3 0.0 0.1 0.2 0.6 0.0 -0.1 -0.3 0.2 0.3 0.5 0.2 0.1 0.3 0.6 0.1 -0.3
0.0 0.1 0.0 0.3 0.2 0.1 0.1 -0.1 0.1 0.0 0.6 0.4 0.4 0.2 -0.4 1.0 0.0 0.2 -0.7 0.1 0.1 -0.2 0.1 0.1 0.5 0.1 0.2 0.4 0.2 0.3 0.1 0.1
-1.2 -0.4 -0.7 -0.2 0.1 -0.3 -0.1 0.0 -0.3 -0.7 0.1 0.1 0.2 0.3 -0.5 -0.1 -1.1 -1.0 -1.4 2.1 -2.3 -1.2 -2.6 -1.9 -1.6 -1.4 -1.4 -1.1 -0.9 -0.5 -1.1 -1.0 -0.6 -0.5
-3.5 -2.4 -3.0 -2.0 -3.0 -2.8 -3.5 -2.5 -2.5 -2.0 -1.9 -2.4 -1.7 -2.7 -1.0 -1.5 -2.0 -1.4 -1.8 -1.8 -0.9 -2.2 -3.0 -1.1 -1.2 -2.2 -2.9 -3.1 -2.3 -2.2 -2.4 -2.9 -3.5 -2.8 -2.8
-4.1 -4.6 -5.2 -6.3 -4.0 -4.9 -2.0 -2.6 -1.2 -2.4 -2.0 -2.7 -3.2

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 10C TO 300 HPA
AUGUST 1994
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 29



500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
AUGUST 1994
FIGURE 30
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



1.6 1.6 1.8 1.6 1.5 1.5 1.6 1.7 1.8 1.9 1.8 2.1 2.1
1.9 1.9 1.7 1.9 1.9 1.7 1.7 1.8 1.9 1.9 1.7 1.9 2.0 1.9 1.9 1.8 1.9 1.9 2.0 2.1 2.0 2.0 1.9 1.7 1.9 2.2 2.0
1.5 1.3 1.2 1.8 1.9 2.0 2.0 2.1 2.1 1.5 1.3 1.1 1.0 1.7 1.6 1.5 1.5 1.4 1.4 1.6 1.7 1.6 1.8 1.9 2.1 2.1 1.9
2.2 1.5 1.4 1.8 1.8 1.8 1.8 1.6 1.7 1.8 1.8 1.5 1.4 1.0 1.5 1.7 1.7 1.7 1.4 1.5 1.5 1.5 1.4 1.7 1.9 2.2 2.3 2.2 2.1
2.7 2.4 1.6 1.4 1.4 1.9 1.5 1.2 1.3 1.7 1.8 1.6 1.6 1.6 1.2 1.0 1.0 0.7 1.2 1.5 1.9 2.0 1.6 1.8 2.1 1.9 1.8 2.0 2.6 2.6 2.4
1.8 1.7 1.7 1.4 1.7 1.8 1.2 1.1 1.1 1.4 1.4 1.5 1.8 1.9 1.8 1.9 1.3 1.1 1.4 0.7 1.2 1.7 1.6 2.2 2.2 2.6 2.5 2.6 2.3 1.8 2.2 2.5 2.4 2.0
1.8 2.0 2.0 1.5 1.6 1.6 1.3 1.5 1.3 1.5 1.9 2.0 2.0 2.1 2.2 2.0 1.6 1.8 2.2 1.7 1.8 1.8 2.0 2.1 1.9 2.1 2.1 1.9 1.9 1.7 2.0 2.2 1.8
1.9 1.9 1.5 1.6 1.7 1.5 1.5 1.7 1.4 1.5 1.9 1.7 2.3 2.1 1.9 1.7 1.1 0.7 0.7 0.5 1.0 1.3 1.4 1.7 1.4 1.4 1.3 1.3 1.3 2.0 2.2 2.2 1.9 2.2 2.4 1.6
2.2 2.2 2.2 2.5 2.4 2.2 2.1 2.1 1.8 1.6 1.7 2.2 2.3 2.4 2.3 1.9 1.4 1.0 0.9 0.6 1.2 1.9 2.1 2.6 2.1 1.9 1.7 1.7 1.9 2.3 2.2 2.3 2.3 2.2 2.0 1.9
2.2 2.4 2.3 2.3 2.4 2.3 2.4 2.0 2.2 1.9 1.7 2.5 2.6 2.5 2.3 2.2 2.5 2.4 1.7 1.8 2.1 2.4 2.8 2.6 2.0 1.7 2.0 2.2 2.5 2.6 2.5 2.1 2.4 2.0 1.7
1.5 1.5 1.6 1.7 1.5 1.4 1.5 1.6 2.0 2.1 2.0 1.8 2.1 2.3 2.0 2.1 2.0 2.5 2.1 2.6 2.3 1.8 1.8 1.9 1.4 1.3 1.5 1.5 1.5 1.6 2.2 2.2 1.9 1.9 1.7 1.5
2.4 1.9 1.9 2.2 2.2 2.0 2.1 1.9 1.9 1.9 1.6 1.3 1.6 1.8 2.0 2.5 1.8 1.5 1.5 1.5 1.8 1.4 1.4 1.5 1.4 1.9 2.2 2.0 1.8 1.9 2.0 2.3 2.5 2.5 2.0 2.0
2.2 1.7 1.7 1.7 1.9 1.5 1.8 1.6 1.3 1.6 1.9 1.5 1.4 1.1 1.6 2.1 1.8 1.0 1.0 1.4 1.6 1.3 1.4 1.2 1.6 2.1 2.4 2.4 2.2 2.3 1.7 1.6 1.9 1.4 1.3 1.7
1.7 2.0 1.7 1.6 1.4 1.1 1.2 1.5 1.1 1.2 1.4 1.1 1.1 0.7 1.0 1.8 1.7 1.2 1.4 2.1 1.6 2.2 2.0 2.4 2.3 2.5 2.6 2.7 2.5 2.1 1.9 1.5 1.5 1.7 1.8 1.8
1.6 2.5 1.8 1.8 1.4 1.2 1.4 1.0 0.9 1.1 1.0 0.7 0.5 0.6 0.5 0.5 0.8 1.0 1.0 0.8 1.3 1.2 1.1 1.9 2.1 3.0 2.8 2.3 2.1 1.8 1.4 1.6 1.7 1.3 1.6 1.8
2.0 2.1 1.8 2.1 1.9 1.8 1.7 1.5 1.3 1.0 0.7 1.8 1.1 0.9 1.1 1.2 1.4 1.2 1.3 0.9 1.4 1.1 1.7 2.4 2.6 2.3 2.4 2.4 2.3 2.0 2.0 1.7 3.3 2.4 1.9 2.1
1.8 2.1 2.1 1.9 1.8 1.7 1.5 1.3 1.4 1.4 1.2 1.4 1.0 1.3 1.4 1.3 1.3 1.1 1.2 1.1 1.3 0.9 0.9 0.8 1.4 1.7 1.3 1.7 1.2 1.5 1.6

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures
Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored :Mean sea-level pressure (hPa)
:Wind speed ($m\ s^{-1}$)
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 $m\ s^{-1}$ (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the wind speed > 3 $m\ s^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
13556	24.1	-56.3	ALL	MSLP	SUR	167	0	0	1.3	0.9	1.5
13561	26.3	-35.8	ALL	MSLP	SUR	150	0	0	1.0	0.6	1.1
25556	75.6	-15.4	ALL	MSLP	SUR	27	0	0	1.4	-0.8	1.6
40602	55.2	-17.9	ALL	MSLP	SUR	1	0	0	0.0	0.3	0.3
40603	12.3	-23.5	ALL	MSLP	SUR	1	0	0	0.0	4.2	4.2
40604	41.5	-44.4	ALL	MSLP	SUR	1	0	0	0.0	-3.5	3.5
40802	34.5	-54.9	ALL	MSLP	SUR	2	0	0	0.5	-0.3	0.6
41522	30.1	-70.2	ALL	MSLP	SUR	287	0	0	0.8	0.9	1.2
44743	30.8	-45.6	ALL	MSLP	SUR	323	1	0	0.7	0.0	0.7
44761	61.8	-21.1	ALL	MSLP	SUR	1266	0	0	1.0	0.4	1.0
44764	56.4	-40.7	ALL	MSLP	SUR	1099	0	0	1.1	0.0	1.1
44766	63.7	-54.0	ALL	MSLP	SUR	1247	167	13	1.2	-0.1	1.2
44767	61.0	-30.0	ALL	MSLP	SUR	1354	3	0	1.3	0.7	1.4
44768	56.0	-20.6	ALL	MSLP	SUR	1224	2	0	1.0	0.3	1.1
44769	57.4	-26.3	ALL	MSLP	SUR	1298	0	0	1.0	0.5	1.1
44770	61.4	-32.7	ALL	MSLP	SUR	1242	4	0	1.2	0.1	1.2
44771	58.6	-12.1	ALL	MSLP	SUR	1256	3	0	1.1	0.2	1.1
44774	53.6	-25.8	ALL	MSLP	SUR	1124	6	1	1.1	0.4	1.2
44775	52.0	-42.1	ALL	MSLP	SUR	896	1	0	1.1	0.0	1.1
44776	54.9	-39.5	ALL	MSLP	SUR	1018	2	0	1.1	0.2	1.1
44777	50.3	-3.9	ALL	MSLP	SUR	1	1	100	0.0	0.0	0.0
44778	63.2	-20.3	ALL	MSLP	SUR	93	0	0	0.8	0.2	0.8
62501	47.7	-8.3	ALL	MSLP	SUR	468	0	0	1.0	-0.5	1.1
62502	44.8	-3.7	ALL	MSLP	SUR	163	0	0	1.2	0.0	1.2
62503	47.1	-7.2	ALL	MSLP	SUR	5	0	0	0.8	-0.8	1.1
62504	49.8	-5.9	ALL	MSLP	SUR	7	0	0	0.7	-1.6	1.7
62506	44.3	-5.5	ALL	MSLP	SUR	273	0	0	1.2	0.3	1.2
62507	48.3	-11.2	ALL	MSLP	SUR	483	0	0	0.9	0.3	1.0
62514	40.5	-14.7	ALL	MSLP	SUR	235	0	0	0.9	-0.8	1.2
62524	29.4	-22.6	ALL	MSLP	SUR	713	1	0	1.0	0.2	1.0
62656	63.8	-6.3	ALL	MSLP	SUR	1	0	0	0.0	-1.9	1.9
62674	60.9	-29.1	ALL	MSLP	SUR	462	0	0	1.2	-1.2	1.7
62675	58.5	-22.7	ALL	MSLP	SUR	480	0	0	0.9	-1.1	1.4
62695	27.9	-24.3	ALL	MSLP	SUR	345	0	0	1.0	0.1	1.0
62696	64.0	-8.3	ALL	MSLP	SUR	1273	0	0	1.1	0.0	1.1
62721	57.5	-19.8	ALL	MSLP	SUR	453	0	0	1.5	0.2	1.5
64528	61.9	-26.7	ALL	MSLP	SUR	1053	4	0	1.0	0.3	1.0
64544	63.2	-29.6	ALL	MSLP	SUR	468	0	0	1.1	0.5	1.2
65592	61.1	-39.5	ALL	MSLP	SUR	1133	15	1	1.4	-0.2	1.4
65593	59.8	-39.6	ALL	MSLP	SUR	62	60	97	0.0	-0.1	0.1
WIND SPEED											
13556	24.1	-56.3	ALL	SPEED	SUR	488	0	0	1.2	-2.3	2.6
13561	26.3	-35.8	ALL	SPEED	SUR	120	0	0	1.0	-1.4	1.7
40602	55.2	-17.9	ALL	SPEED	SUR	1	0	0	0.0	3.1	3.1
40603	12.3	-23.5	ALL	SPEED	SUR	1	0	0	0.0	1.7	1.7
40604	41.5	-44.4	ALL	SPEED	SUR	1	0	0	0.0	-2.9	2.9
40802	34.5	-54.9	ALL	SPEED	SUR	2	0	0	1.2	1.9	2.2
44764	56.4	-40.7	ALL	SPEED	SUR	932	1	0	1.7	0.0	1.7
44776	54.9	-39.5	ALL	SPEED	SUR	861	1	0	1.8	-0.3	1.9
62502	44.8	-3.7	ALL	SPEED	SUR	378	0	0	1.9	1.5	2.4
62506	44.3	-5.5	ALL	SPEED	SUR	137	0	0	2.1	1.9	2.9
64544	63.2	-29.6	ALL	SPEED	SUR	462	0	0	2.2	-3.7	4.3
WIND DIRECTION											
13556	24.1	-56.3	ALL	DIRN.	SUR	251	0	0	14.3	11.7	18.5
13561	26.3	-35.8	ALL	DIRN.	SUR	51	0	0	12.1	1.9	12.2
40602	55.2	-17.9	ALL	DIRN.	SUR	1	0	0	0.0	35.7	35.7
40604	41.5	-44.4	ALL	DIRN.	SUR	1	0	0	0.0	100.1	100.1
40802	34.5	-54.9	ALL	DIRN.	SUR	2	0	0	32.2	2.8	32.4

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION											
44764	56.4	-40.7	ALL	DIRN.	SUR	684	1	0	24.5	14.8	28.6
44776	54.9	-39.5	ALL	DIRN.	SUR	650	1	0	26.8	8.0	28.0
62502	44.8	-3.7	ALL	DIRN.	SUR	233	0	0	25.5	-2.3	25.6
62506	44.3	-5.5	ALL	DIRN.	SUR	90	0	0	33.8	4.8	34.2
64544	63.2	-29.6	ALL	DIRN.	SUR	290	0	0	100.4	*****	149.0

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures:
Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

IDENT.	N.REP.	TEMPERATURE PG	PR	RMS	BIAS	N.REP.	WIND PG	PR	PC	RMS	BIAS
AAL	1944	0	2	2.1	-0.5	1952	0	2	0	7.6	1.7
AAN	90	0	2	1.6	-0.6	88	0	2	0	8.2	0.6
ACA	931	1	2	2.4	0.0	940	0	2	1	7.2	0.5
ADV	31	0	0	2.2	-0.9	31	0	3	3	11.0	5.5
AEA	162	2	2	1.7	0.0	158	0	3	0	8.7	0.9
AEL	226	0	2	1.8	-0.1	232	0	3	0	7.6	0.8
AFL	75	7	100	4.3	2.7	74	0	100	1	11.2	1.1
AFR	647	0	4	2.0	-0.2	659	0	5	0	8.0	1.2
AIC	23	0	0	2.2	-0.9	23	0	4	0	10.0	2.4
AMT	43	14	30	4.3	1.4	51	0	6	0	9.9	0.2
AMX	203	0	70	2.6	0.6	206	0	4	0	7.4	0.0
ANZ	187	0	4	2.3	-1.4	188	0	6	1	8.6	1.6
AOM	248	0	2	1.7	0.2	253	0	3	0	8.6	1.7
ATN	221	1	6	2.6	-1.9	226	0	74	0	12.7	3.2
AUA	47	0	4	2.2	-0.6	48	0	4	0	10.8	1.5
AVA	107	0	1	1.8	-0.4	110	0	3	0	8.2	1.2
AVY	56	0	4	2.0	-1.0	58	0	5	0	7.4	0.1
AZA	415	0	4	2.3	0.3	416	0	4	0	8.2	1.3
BAL	196	0	12	2.0	-0.2	195	0	13	0	8.0	1.7
BAW	1136	0	4	2.1	-0.4	1142	0	4	0	7.6	1.2
BBB	29	0	24	1.3	-0.4	29	0	24	0	7.5	1.3
BWA	90	0	1	1.5	0.5	92	0	3	0	9.2	1.8
CDN	606	1	3	2.0	0.0	612	0	5	1	7.3	1.7
CFG	325	0	30	2.2	-1.3	334	0	2	0	7.3	0.9
CKT	48	0	4	2.0	-0.2	50	0	6	0	7.4	1.4
CLI	245	0	2	2.4	0.0	246	0	1	0	6.7	0.9
CLX	90	0	2	2.4	-0.8	91	0	3	0	7.0	0.7
CMM	210	0	1	2.1	-0.3	213	0	0	0	7.6	2.0
COA	383	1	5	2.1	0.7	378	0	5	1	7.7	1.1
CRL	103	0	3	1.5	-0.1	103	0	4	0	8.1	1.7
CTM	33	3	42	3.4	-1.8	33	0	15	0	8.6	3.8
CUB	118	2	11	2.1	1.0	118	0	10	0	9.4	1.3
DAL	2785	1	2	2.0	-0.3	2778	0	3	0	7.8	1.3
DHL	173	4	83	4.2	-2.9	170	1	100	1	9.8	1.7
DLH	1567	0	5	2.0	-0.6	1581	0	7	3	7.3	1.4
DOA	111	0	14	1.6	-0.1	111	0	15	0	7.7	0.3
EIA	93	0	8	2.1	-0.5	94	0	14	0	11.4	2.0
ELY	143	1	2	2.0	-0.1	146	0	4	0	9.8	1.1
EWW	20	0	0	4.1	1.5	21	0	0	0	10.2	2.5
FDX	340	1	3	2.0	0.2	354	0	4	0	8.3	1.4
FIN	441	1	5	2.2	0.2	440	0	5	1	7.5	1.1
GAF	130	1	2	2.2	-0.5	131	0	2	2	7.1	1.7
GFA	31	0	6	2.0	1.0	34	0	6	0	7.5	0.6
HLF	75	0	39	2.1	-1.1	79	0	5	0	8.8	1.3
IBE	922	1	20	2.1	-0.4	919	0	20	0	8.3	0.9
ICE	406	0	0	1.9	-0.3	403	0	3	1	7.6	1.3
KLM	1356	0	2	1.9	-0.1	1363	0	2	0	7.5	1.2
LDA	185	0	42	2.4	-1.4	190	0	11	0	6.8	0.8
LDI	132	0	37	2.0	-1.2	130	0	5	0	9.5	1.4
LIB	96	0	4	2.0	0.0	100	0	3	0	7.4	0.0
LOT	686	0	2	2.3	-0.5	681	0	1	0	7.8	1.4
LTU	393	1	5	1.7	0.1	385	0	6	0	8.8	1.6
MAH	38	0	29	5.8	4.8	38	0	5	0	8.1	2.5
MPH	484	0	2	1.9	-0.7	481	0	2	0	8.0	1.1
NWA	2396	1	3	2.2	0.5	2432	0	3	1	8.1	1.2
OAL	41	0	5	2.3	1.1	42	0	5	0	11.0	1.5
RIA	31	10	13	3.2	2.1	33	0	21	0	14.4	7.6
RJA	48	0	6	1.8	0.1	49	0	12	0	11.2	3.1
ROT	35	0	3	1.6	-0.4	34	0	3	0	10.0	2.9

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
RRR	204	1	20	2.5	-0.7	205	0	71	0	9.4	2.8
SAB	52	0	4	1.9	0.2	51	0	4	0	6.1	1.2
SAS	1716	0	1	2.2	-0.6	1698	0	3	2	7.0	1.0
SIA	60	0	5	2.1	-1.2	60	0	10	0	11.4	1.4
SPP	131	1	2	1.7	-0.4	126	0	0	0	7.4	1.0
SVA	151	1	7	1.9	0.1	169	0	8	0	8.4	0.5
SWR	144	0	1	2.1	0.3	144	0	1	0	8.4	1.2
TAP	421	1	2	1.7	-0.2	418	0	1	0	8.4	1.3
TIH	125	1	5	1.8	-0.4	122	0	4	0	8.1	2.1
TOW	111	0	3	2.3	0.0	119	0	5	0	10.9	1.2
TSC	240	0	7	2.4	-0.6	246	0	9	0	9.6	2.1
TWA	1138	1	2	2.0	-0.3	1132	0	3	0	8.2	1.5
UAL	2310	1	5	2.5	-0.5	2329	0	5	3	9.0	0.4
ULE	80	1	3	1.6	-0.2	83	0	4	0	7.2	1.1
UPS	269	1	16	2.2	-0.3	266	0	17	0	9.3	1.0
USA	86	0	2	1.9	-0.7	82	0	5	0	7.7	1.9
VIA	101	2	2	1.4	0.3	104	0	3	0	7.6	0.6
VIR	136	2	4	2.2	-0.2	137	0	3	0	7.7	2.4
WOA	112	1	3	1.8	0.2	112	0	2	0	6.1	1.2
BA	6927	0	6	1.7	0.3	6922	0	6	0	7.2	1.5
NW	27	0	0	1.4	-0.4	27	0	0	0	5.1	0.5
M	160	0	6	3.0	0.2	172	0	12	0	12.5	3.0
N	152	2	5	2.8	1.5	152	0	3	0	7.2	0.7

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.1	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	6	0	17.4	19.3	8.3
DBBH	12	Z	100	5	0	17.3	19.9	9.8
DBLK	00	Z	100	1	0	0.0	12.0	12.0
DBLK	12	Z	100	22	0	13.5	19.9	14.5
EHOA	00	Z	100	1	0	0.0	7.0	7.0
EHOA	12	Z	100	15	0	15.8	15.8	0.8
FNOR	00	Z	100	15	0	14.0	18.8	12.5
FNOR	12	Z	100	11	0	22.5	23.1	-5.5
FNOU	00	Z	100	8	0	17.9	18.2	3.4
FNOU	12	Z	100	11	0	47.6	49.8	14.7
FNPH	00	Z	100	11	0	18.1	18.6	4.1
FNPH	12	Z	100	10	0	19.7	24.0	-13.7
FNRS	00	Z	100	14	0	10.5	16.9	13.3
FNRS	12	Z	100	9	0	12.5	16.1	-10.2
FNRW	00	Z	100	1	0	0.0	29.0	29.0
GACA	00	Z	100	28	0	15.9	25.5	19.9
GACA	12	Z	100	26	0	11.5	13.1	6.3
JBOA	00	Z	100	1	0	0.0	17.0	17.0
JDWX	00	Z	100	1	0	0.0	10.0	10.0
LDWR	00	Z	100	29	0	12.2	12.2	0.6
LDWR	12	Z	100	27	0	17.4	17.5	-2.0
OXYL	00	Z	100	18	0	11.8	19.4	15.4
OXYL	12	Z	100	19	0	17.0	33.3	28.6
OZJP	00	Z	100	18	0	15.2	16.5	6.3
OZJP	12	Z	100	19	0	17.2	19.9	10.1
SHIPAA	00	Z	100	8	0	14.8	18.8	11.5
SHIPAA	12	Z	100	7	0	28.2	31.1	13.1
VNOU	00	Z	100	1	0	0.0	19.0	19.0
V2LV	00	Z	100	22	0	32.6	33.9	9.3
V2LV	12	Z	100	21	0	21.3	22.6	7.5
V2LX	00	Z	100	28	0	9.7	11.9	7.0
V2LX	12	Z	100	28	0	12.6	12.7	1.3
03953	00	Z	100	29	0	10.9	29.5	27.4
03953	12	Z	100	28	0	9.3	22.0	19.9
04018	00	Z	100	26	0	14.8	18.5	11.1
04018	12	Z	100	28	0	14.5	22.6	17.3
04220	00	Z	100	30	0	16.9	20.9	12.4
04220	12	Z	100	29	0	14.5	27.0	22.8
04270	00	Z	100	30	0	15.9	20.1	12.3
04270	12	Z	100	29	0	15.2	25.3	20.2
04339	00	Z	100	29	0	17.4	19.2	8.1
04339	12	Z	100	29	0	14.3	20.5	14.7
04360	00	Z	100	28	0	9.7	21.2	18.8
04360	12	Z	100	28	0	17.1	33.0	28.3
08001	00	Z	100	28	0	30.8	37.0	20.4
08001	12	Z	100	28	0	17.7	18.0	-3.7
08508	00	Z	100	29	0	17.4	19.7	9.2
08508	12	Z	100	29	0	18.2	20.4	-9.2
08594	00	Z	100	26	0	16.2	16.4	-2.8
08594	12	Z	100	22	0	17.1	21.9	-13.7
60020	00	Z	100	29	0	15.8	16.7	-5.4
60020	12	Z	100	27	0	20.9	25.4	-14.5
71600	00	Z	100	29	0	20.7	22.2	8.0
71600	12	Z	100	27	0	25.2	41.6	33.1
72201	00	Z	100	25	1	23.2	32.1	22.2
72201	12	Z	100	27	0	21.0	38.3	32.0
72304	00	Z	100	1	0	0.0	35.0	35.0
72304	12	Z	100	1	0	0.0	74.0	74.0
72402	00	Z	100	28	0	18.6	44.7	40.6
72402	12	Z	100	28	0	19.9	64.5	61.4

```
 WMO   OBS                   NUM    NUM
IDENT TIME ELM   LEV     OBS   GROSS      SD      RMS     BIAS

72606  00   Z    100     29      0       14.0    14.4      3.3
72606  12   Z    100     29      0       16.1    39.4     36.0
74494  00   Z    100     27      0       17.9    19.0     -6.3
74494  12   Z    100     28      0       40.5    59.0     42.9
```

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	8	0	6.6	11.0	8.8
DBBH	12	Z	500	5	0	6.5	16.7	15.4
DBLK	00	Z	500	1	0	0.0	1.0	-1.0
DBLK	12	Z	500	22	0	21.6	22.3	-5.7
EHOA	00	Z	500	1	0	0.0	13.0	13.0
EHOA	12	Z	500	16	0	11.9	13.0	5.3
FNOR	00	Z	500	15	0	10.4	15.2	11.1
FNOR	12	Z	500	11	0	7.0	8.2	4.4
FNOU	00	Z	500	10	0	6.4	14.9	13.5
FNOU	12	Z	500	12	0	7.6	10.1	6.7
FNPH	00	Z	500	11	0	8.0	10.2	6.3
FNPH	12	Z	500	10	0	8.2	8.3	-1.2
FNRS	00	Z	500	14	0	8.4	11.2	7.4
FNRS	12	Z	500	9	0	13.0	13.0	0.0
FNRW	00	Z	500	1	0	0.0	10.0	10.0
GACA	00	Z	500	28	0	11.0	16.4	12.2
GACA	12	Z	500	26	0	11.7	11.8	1.6
JBOA	00	Z	500	1	0	0.0	3.0	3.0
JDWX	00	Z	500	1	0	0.0	3.0	-3.0
LDWR	00	Z	500	27	0	7.4	13.7	11.5
LDWR	12	Z	500	27	0	10.8	10.9	1.3
OXYL	00	Z	500	18	0	12.7	14.9	7.8
OXYL	12	Z	500	19	0	13.2	19.6	14.5
OZJP	00	Z	500	18	0	12.3	12.3	1.1
OZJP	12	Z	500	19	0	14.7	15.0	-2.8
SHIP	00	Z	500	1	0	0.0	12.0	-12.0
SHIPAA	00	Z	500	9	0	9.4	10.5	-4.7
SHIPAA	12	Z	500	7	0	9.7	13.4	-9.3
VNOU	00	Z	500	1	0	0.0	3.0	3.0
V2LV	00	Z	500	26	0	19.1	19.2	2.6
V2LV	12	Z	500	23	0	12.8	13.5	-4.4
V2LX	00	Z	500	28	0	8.4	9.0	3.4
V2LX	12	Z	500	28	0	8.0	8.3	-2.4
03953	00	Z	500	30	0	9.0	13.6	10.2
03953	12	Z	500	28	0	7.6	9.4	5.6
04018	00	Z	500	30	0	11.6	18.6	14.6
04018	12	Z	500	29	0	11.5	16.1	11.2
04220	00	Z	500	30	0	14.5	15.3	5.0
04220	12	Z	500	29	0	11.2	12.9	6.5
04270	00	Z	500	30	0	11.2	13.7	7.8
04270	12	Z	500	29	0	11.2	14.4	9.1
04339	00	Z	500	30	0	13.8	17.9	11.4
04339	12	Z	500	29	0	10.9	12.1	5.1
04360	00	Z	500	28	0	10.7	13.6	8.4
04360	12	Z	500	28	0	14.5	14.7	2.5
08001	00	Z	500	28	0	23.0	30.1	19.4
08001	12	Z	500	27	0	13.0	13.4	-3.2
08508	00	Z	500	30	0	9.5	14.3	10.7
08508	12	Z	500	29	0	8.3	8.7	-2.8
08594	00	Z	500	25	0	9.0	11.9	7.8
08594	12	Z	500	22	0	10.4	12.7	7.2
60020	00	Z	500	29	0	9.0	12.9	9.2
60020	12	Z	500	27	0	11.4	11.4	0.5
71600	00	Z	500	30	0	13.0	13.6	-4.1
71600	12	Z	500	27	0	11.2	12.3	5.0
72201	00	Z	500	28	0	8.3	14.4	11.9
72201	12	Z	500	28	0	8.8	13.6	10.4
72304	00	Z	500	1	0	0.0	6.0	6.0
72304	12	Z	500	1	0	0.0	16.0	16.0
72402	00	Z	500	29	0	8.0	12.3	9.4

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72402	12	Z	500	28	0	7.1	18.1	16.6
72606	00	Z	500	29	0	6.6	6.6	0.6
72606	12	Z	500	29	0	5.6	10.1	8.3
74494	00	Z	500	27	0	7.0	7.3	-2.1
74494	12	Z	500	29	0	10.2	11.3	4.8

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :VECTOR WIND in $m\ s^{-1}$

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	7	0	0	0.0	-1.8	-1.9
DBBH	12	V	100	5	0	0	5.1	-2.3	1.3
DBLK	00	V	100	1	0	0	4.0	-0.8	2.6
DBLK	12	V	100	22	0	0	4.0	-1.2	0.0
EHOA	00	V	100	1	0	0	1.7	-1.6	2.8
EHOA	12	V	100	15	0	0	1.7	-2.1	0.0
FNOR	00	V	100	15	0	0	3.1	0.1	0.3
FNOR	12	V	100	11	0	0	2.5	-0.5	-2.4
FNOU	00	V	100	8	0	0	3.1	-0.9	0.2
FNOU	12	V	100	10	0	0	3.1	-1.5	-2.0
FNPH	00	V	100	10	0	0	3.0	-1.7	0.0
FNPH	12	V	100	10	0	0	3.5	-0.5	-2.0
FNRS	00	V	100	13	0	0	2.9	-0.9	0.9
FNRS	12	V	100	9	0	0	3.1	-2.0	-1.3
FNRW	00	V	100	1	0	0	3.1	-0.2	3.4
GACA	00	V	100	28	0	0	3.1	-0.6	-0.5
GACA	12	V	100	26	0	0	2.5	-1.2	-0.8
JBOA	00	V	100	1	0	0	2.5	-2.4	-1.6
JDWX	00	V	100	1	0	0	4.4	2.0	-0.6
LDWR	00	V	100	29	0	0	4.4	0.9	0.2
LDWR	12	V	100	27	0	0	1.9	0.5	0.1
OXYL	00	V	100	18	0	0	2.0	-0.4	-1.0
OXYL	12	V	100	19	0	0	2.9	-0.6	-1.2
OZJP	00	V	100	18	0	0	2.4	-0.5	-1.3
OZJP	12	V	100	19	0	0	1.9	-0.5	-2.4
SHIPAA	00	V	100	7	0	0	2.4	2.5	-1.6
SHIPAA	12	V	100	6	0	0	2.4	-0.2	-0.8
VNOU	00	V	100	1	0	0	2.4	0.8	-2.2
V2LV	00	V	100	22	0	0	2.4	1.6	0.8
V2LV	12	V	100	20	0	0	2.8	0.7	0.0
V2LX	00	V	100	28	0	0	2.7	0.6	0.4
V2LX	12	V	100	28	0	0	3.0	-1.1	-0.5
03953	00	V	100	29	0	0	2.7	-0.4	0.5
03953	12	V	100	29	0	0	2.2	-0.1	-0.7
04018	00	V	100	24	0	0	2.0	0.3	-1.1
04018	12	V	100	28	0	0	2.2	-0.5	-1.2
04220	00	V	100	30	0	0	1.8	-0.1	-0.3
04220	12	V	100	29	0	0	1.8	0.6	-0.8
04270	00	V	100	30	0	0	1.9	-1.2	0.0
04270	12	V	100	29	0	0	2.2	-1.1	-0.4
04339	00	V	100	29	0	0	2.2	0.0	-0.3
04339	12	V	100	28	0	0	2.0	-1.3	-1.2
04360	00	V	100	28	0	0	1.8	-1.3	-0.4
04360	12	V	100	28	0	0	2.5	-1.7	-2.3
08001	00	V	100	28	0	0	2.8	0.9	0.1
08001	12	V	100	28	0	0	2.7	-1.0	-1.4
08508	00	V	100	29	0	0	2.1	1.9	2.8
08508	12	V	100	29	0	0	3.3	0.0	0.6
08594	00	V	100	24	0	0	3.8	-0.1	-0.1
08594	12	V	100	22	0	0	3.8	1.1	1.9
60020	00	V	100	29	0	0	4.5	-0.6	0.9
60020	12	V	100	26	0	0	3.1	-0.9	0.1
71600	00	V	100	28	0	0	2.9	-0.9	-1.8
71600	12	V	100	27	0	0	2.6	-0.5	-1.7
72201	00	V	100	24	0	0	2.9	0.9	2.4
72201	12	V	100	27	0	0	2.1	-1.2	3.1
72304	00	V	100	1	0	0	2.8	0.2	1.1
72304	12	V	100	1	0	0	2.8	-2.2	-2.5
72402	00	V	100	26	0	0	3.3	-0.5	0.9
72402	12	V	100	26	0	0	3.0	-0.6	0.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
72606	00	V	100	26	0	0	3.8	0.0	-0.4
72606	12	V	100	24	0	0	2.7	-0.4	-0.5
74494	00	V	100	26	0	0	2.3	-0.5	-0.7
74494	12	V	100	26	0	0	2.3	-1.3	-1.2

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:August, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	8	0	0	0.0	0.7	-2.2
DBBH	12	V	500	5	0	0	3.6	-0.8	-1.3
DBLK	00	V	500	1	0	0	2.9	0.9	7.1
DBLK	12	V	500	22	0	0	2.9	0.8	-0.2
EHOA	00	V	500	1	0	0	4.0	-2.9	2.1
EHOA	12	V	500	16	0	0	4.0	-1.1	0.3
FNOR	00	V	500	15	0	0	2.4	1.4	1.2
FNOR	12	V	500	11	0	0	2.6	1.7	1.2
FNOU	00	V	500	10	0	0	2.9	0.1	-0.7
FNOU	12	V	500	12	0	0	2.8	-1.2	-1.2
FNPH	00	V	500	11	0	0	3.1	0.9	0.1
FNPH	12	V	500	10	0	0	3.4	2.1	-0.1
FNRS	00	V	500	13	0	0	2.9	1.0	0.3
FNRS	12	V	500	9	0	0	2.7	-0.8	1.3
FNRW	00	V	500	1	0	0	2.7	-3.1	-0.9
GACA	00	V	500	28	0	0	2.7	0.9	-0.1
GACA	12	V	500	26	0	0	3.5	0.1	0.4
JBOA	00	V	500	1	0	0	2.5	0.2	-0.5
JDWX	00	V	500	1	0	0	4.0	-2.6	-2.3
LDWR	00	V	500	27	0	0	4.0	-0.1	-0.2
LDWR	12	V	500	27	0	0	2.2	0.0	0.5
OXYL	00	V	500	18	0	0	2.8	-1.3	1.2
OXYL	12	V	500	19	0	0	4.0	-0.1	-1.2
OZJP	00	V	500	18	0	0	2.8	-0.9	1.9
OZJP	12	V	500	19	0	0	3.6	-0.3	0.2
SHIP	00	V	500	1	0	0	3.0	1.2	3.7
SHIPAA	00	V	500	9	0	0	3.0	0.0	0.3
SHIPAA	12	V	500	7	0	0	3.0	1.7	-0.9
VNOU	00	V	500	1	0	0	3.0	-0.6	1.8
V2LV	00	V	500	25	0	0	3.0	0.4	-0.1
V2LV	12	V	500	22	0	0	2.9	-0.7	1.3
V2LX	00	V	500	26	0	0	3.3	0.0	1.2
V2LX	12	V	500	28	0	0	3.1	-0.8	0.7
03953	00	V	500	30	0	0	3.2	-0.1	0.6
03953	12	V	500	28	0	0	4.0	-0.7	0.1
04018	00	V	500	29	0	0	3.1	0.3	-0.7
04018	12	V	500	29	0	0	3.2	-0.3	0.3
04220	00	V	500	30	0	0	2.3	-0.5	0.0
04220	12	V	500	29	0	0	3.0	0.1	0.2
04270	00	V	500	30	0	0	3.5	-0.4	0.8
04270	12	V	500	28	0	0	3.8	-0.1	0.4
04339	00	V	500	29	0	0	4.6	0.9	-0.4
04339	12	V	500	28	0	0	3.1	1.3	0.3
04360	00	V	500	28	0	0	2.7	-0.4	0.5
04360	12	V	500	28	0	0	2.8	-0.1	0.4
08001	00	V	500	28	0	0	2.8	1.6	0.4
08001	12	V	500	27	0	0	4.3	-0.9	0.3
08508	00	V	500	30	0	0	3.0	1.3	0.9
08508	12	V	500	29	0	0	3.2	-1.4	-1.1
08594	00	V	500	24	0	0	2.8	-1.8	-0.9
08594	12	V	500	21	0	0	3.5	-1.0	-0.2
60020	00	V	500	29	0	0	2.8	-0.9	-0.6
60020	12	V	500	26	0	0	2.6	-2.2	-1.1
71600	00	V	500	30	0	0	2.8	-0.1	1.6
71600	12	V	500	27	0	0	3.0	0.5	-0.3
72201	00	V	500	28	0	0	3.0	1.2	-0.1
72201	12	V	500	27	0	0	2.4	0.5	-0.2
72304	00	V	500	1	0	0	2.9	0.6	-0.6
72304	12	V	500	1	0	0	2.9	-0.7	-0.1
72402	00	V	500	29	0	0	2.6	0.5	0.7

```
 WMO   OBS                   NUM    NUM       %
IDENT  TIME  ELM    LEV      OBS   GROSS     REJ      RMS     UBIAS    VBIAS

72402   12    V     500      27      0        0       2.7      0.8      1.1
72606   00    V     500      29      0        0       2.5     -1.0     -0.4
72606   12    V     500      29      0        0       2.5     -0.3      0.7
74494   00    V     500      27      0        0       3.2     -0.7      0.2
74494   12    V     500      29      0        0       1.9      0.8      1.1
```

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5,10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45